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ORIGINAL ARTICLES.

THE OPERATIVE AND MECHANICAL TREATMENT OF SOME JOINT DISEASES AND INJURIES;

With especial reference to the hip-, knee-, and elbow-joints, with illustrative cases; with twelve illustrations.[1]

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I. CONCERNING HIP-JOINT DISEASE, ETC.

I know of no deformity in which the proper use of tenotomy is so much ignored, and in which a more unreasonable use of braces is resorted to, than in hip-joint disease; and this, I believe, results from an inattentive consideration of the pathology of this disease. I have repeatedly met with inflammation of the coxo-femoral articulation in which the first thing thought of was the use of a brace or extension splint, without any regard whatever, apparently, to the contracted condition of the muscles about the hip, or of the flexion of the thigh on the pelvis due to effusion into the joint; or even of the atrocious pain caused by the grating together of eroded joint surfaces. In such cases there has evidently been an attempt to fit a crooked and painful limb to a straight splint without any benefit, and with much suffering to the patient.[2]

The following are some cases that I shall relate as examples of this attempt to fit a crooked limb to a straight instrument.

Fibrous ankylosis of the hip-joint; tenotomy; brisement forcé.—Harry S., aged eleven years, was seen by me with Dr. P. V. Carlin, of Denver, during July, 1887, who saw him for the first time some weeks previously. The boy had limped more or less for two or three years, complained of his left hip, and especially of his knee; had scarlet fever, and some months afterward measles, and complained of pain on the inside of his knee during the scarlet fever. About a week after the subsequent attack of measles, which was in January, 1887, his left leg drew up. Later he was seen repeatedly by a practitioner of Denver, some time during the spring of 1887, who proposed a hip splint, and measured him for it. This doctor applied a weight and pulley to his left leg for three or four weeks. On questioning the parents of the boy, it was discovered that the doctor alluded to, made extension without placing a pillow under the thigh, and making traction "in the line of the deformity;" in other words, extension was made without any heed to the pathological condition; in violation of the anatomical arrangement and physiological action of the muscles about the hip; and necessarily with the pelvis more or less tilted to compensate somewhat for the faulty use of the extension weight. The parents said the leg would hurt him in the night, and often the extension weight would be found on the floor in the morning.

Oct. 6, 1887. The patient having been etherized by Dr. W. W. MacGregor, then of Denver, now of Glenwood Springs, Colorado, I did tenotomy of the rectus femoris and adductor longus muscles; and after sealing hermetically the little wounds of the skin and bandaging the groin, I did *brisement forcé* at the hip, and restored mobility to the joint. Ice-bags and extension weight applied, with the thigh slightly flexed on the pelvis. Saw him each day; there was no notable rise of temperature.

23d He was etherized and forcible movements of the limb were made; ice-bags to the hip and groin, and after a few days the parents were properly instructed how to make motion at the joint, which they did well and with excellent results.

Nov. 13. Applied hip splint; my modification of the Sayre-Shaffer hip brace, made for patient by Tiemann & Co. (see Fig. 1). Subsequently good movement about the joint; brace discarded and patient cured.

Another example of an attempt to fit a crooked limb to a straight splint, has already been published by me in the *Transactions of the Colorado State Medical Society* of last year (1887), and is the case of Katie M., in which *brisement forcé* was done and subsequently successful restoration of the functions of the limb was established and maintained; the same can be said of my case of *brisement forcé* published in the *Medical Record* of December 18, 1886.

In these cases I have referred especially to the utility and desirability of *brisement forcé* at the hip-joint when properly practised and afterward suitably managed by the use of extension weight and ice-

[1] Read before the American Orthopædic Association, at its associate meeting with the Congress of American Physicians and Surgeons, at Washington, 1888.

[2] I wish here to record my protest against immobilization alone in the treatment of hip-joint disease. I have been successful, as have Sayre and others, in curing this disease with motion, indeed with perfect restoration of the function of the limb, and I regard attempts generally to obtain a so-called cure of hip-joint disease by ankylosis, as a retrograde movement in surgery, and as such unworthy of imitation; as entirely opposed to a sound and well-established principle of the treatment of inflamed joints by extension and counter-extension rightly applied. To impart motion judiciously to an inflamed joint, as its inflammation subsides, is a most rational act on the part of the surgeon, and the action of a suitably constructed traction brace is to perform this office.

bags to the hip and groin; the neglect of which would make of *brisement forcé* a most formidable undertaking. A most remarkable case of this kind I have yet to relate.

Fibrous ankylosis of the hip-joint from hip-joint disease; tenotomy and brisement forcé during pregnancy.—Miss ——, aged nineteen years, had fibrous ankylosis of the right hip-joint from hip-joint disease, which first developed itself seven years previously. I first saw her December 13, 1887. She was a fine-looking, well-developed girl, except about the right hip and right lower limb, which were atrophied and the limb was shortened. No abscess had ever opened about the hip or groin; the disease was caused by a blow received on the hip; the general health had most of the time been good. There was some soreness occasionally about the hip, which was considerably elevated, with adduction of the thigh, eversion of the foot, and an apparent shortening of three and a half to four inches.

Dec. 19, 1887. Extension weight of nine pounds and elevation of the foot of the bed; thighs flexed on the pelvis with a pillow under them; extension weight did no good, except to relieve the slight soreness about the hip.

26th. I did tenotomy of the rectus femoris and adductor longus muscles, and also *brisement forcé* after thorough etherization by Dr. W. W. MacGregor. The snapping and cracking of the adhesions were distinctly audible at a distance; in fact, the adhesions were most thoroughly broken up, and perfect mobility of the previously ankylosed hip-joint accomplished.

No appreciable prominence of the abdomen was observed after straightening the limb, and neither Dr. MacGregor, myself, nor the woman attendant, her relation or connection, who assisted us, suspected her condition of pregnancy at the time, and everything passed off satisfactorily, even to the subsequent fitting of the brace by the instrument-maker about a month later.

Extension weight with thighs flexed and pillow under them; ice-bags to hip and groin.

28th. Morning temperature 99 5° F., evening temperature 101.3° F. Very sore about the hip. More explicit directions given about the use of the ice-bags; restless, antipyrin as a sedative.

29th. Evening temperature 101.2° F.; antipyrin. After this the temperature was at no time above 101°, and gradually, in a week, it became normal.

Afterward I practised daily, or caused to be practised, motion of the hip under proper care; and soon she was ready for the hip brace, which was applied by the instrument-maker in my presence about one month after the *brisement forcé*. She was remarkably straight, and the result of the treatment as good as could be wished for. She required a raised cork sole to her shoe of one and a half inches, which was the extent of the shortening.

I saw her repeatedly afterward, and on March 5, 1888, applied fresh plaster and bandages to her limb, and enjoined the use daily of motion of the joint. I lost sight of her for awhile, and my instructions were to notify me when the adhesive plaster and bandages required changing.

About May 15, 1888, I heard that she had just been delivered of a child at full term, much to my surprise, as well as to that of her aunt or relative, who up to the time of the labor pains was ignorant of her condition; besides, this woman, her relative, had during a part of her life been a nurse.

The lordosis of hip disease would, in the first place, and during the early period of pregnancy, have diverted me from the suspicion of pregnancy in a young but deformed girl whom I had no reason

FIG. 1.

to suspect of such a thing. This case, however, is a strong argument in favor of *brisement forcé* under suitable after-treatment; and is brought forward entirely with a view to support this operation as a valuable resource in the treatment of fibrous ankylosis of the hip-joint. Of course, it takes considerable time in such cases to give to the limb that strength and development which rubbing and the use of the limb will gradually produce. This is not understood, or there is an indifference to this fact on the part of those concerned; there has been neglect of motion, and further treatment has been declined, with no appreciation of what was done.

As examples of mechanical treatment of hip-joint disease, without tenotomy, or other operative meas-

ures, I beg to refer to a few cases treated by the extension weight and pulley, followed by the continuance of this at night, and during the day by the use of the brace which I use and which I have already mentioned—that is, my modification of the Sayre-Shaffer hip-joint splint; and which I thus described in my article on hip-joint disease in the *Medical Record* of December 18, 1886 (see Fig. 1 of this traction hip-splint recently made for me by Tiemann & Co., and exhibited to the Orthopædic Association):

"I wish to claim nothing for this splint except that it is a useful combination of other instruments, and I believe will be found to answer a better purpose than some of those in use. This instrument differs from the Shaffer hip-joint extension splint in not having the weight of the body deflected from its straight course along a bent or bayonet-shaped bar of steel to the sole of the foot, and which causes the bar to bend under the weight; and the foot to tend to turn inward. On the contrary, the force exercised by the weight of the body is decomposed, and transmitted solidly downward by two vertical rods of steel to the small horizontal rod under the sole of the shoe; and around this small rod the shoe turns to permit flexion and extension of the foot. The rest of the instrument is arranged for extension and other motions, like Sayre's short splint for the treatment of hip-joint disease. The Shaffer spiral spring is made strong enough to keep the weight of the body from stretching the adhesive straps, which are designed solely for extension at the hip-joint. This spring can be loosened or fastened, and moved up or down for an inch or two or more, by means of the same key that is used to extend or rotate the limb."

But the ball-and-socket joint at the hip makes this rotary movement of the instrument in its shaft unnecessary and adds to its expense. It is made by Tiemann & Co., N. Y.; and by Mr. Brittain, of Denver.

The first example of purely mechanical treatment that I shall cite is that of a consumptive with hip-joint disease, in which there was only improvement of the local hip trouble without any permanent benefit; but which, however satisfactorily establishes the utility of proper treatment in the worse cases:

M. M., æt. thirty years, laborer, was sent to me by Dr. J. C. Blickensderfer, of Denver, with disease of the right hip-joint. Patient came to my office December 6, 1887, on crutches, was very weak, and much emaciated, and in addition to his hip-disease is phthisical. The pain about the hip was excruciating, and he was in great terror of being touched. Allowing him to undress himself at his leisure, and to take a position on a blanket spread on the floor, I astonished him and soon gained his confidence by gently and suddenly seizing his right thigh with my left hand while the same arm supported his left thigh, and lifted him from the floor, making extension while so doing "in the line of the deformity." The poor fellow, who a minute before was terrified out of his wits at an attempt to touch him, at once became quiet and exclaimed "O! that feels so good!" If we owed nothing else to Sayre, it would be a lasting tribute to his memory, the fact alone of his having shown us how, without pain, to handle a patient with hip-joint disease; and this poor suffering patient's exclamation was an eloquent prayer for extension in hip-joint disease.

December 7, 1887. Applied adhesive plaster; and extension weight of nine pounds; raising foot of bed—motion made at regular intervals.

January 25, 1888. Ready for splint; had bed-sore; set him up in bed to take pressure off of sore; ordered splint for him of Tiemann & Co.

February 17. I fitted splint to him, and afterward repeatedly saw him walking about in his splint comfortably.

On June 3, 1887, a little boy, F., with hip-joint disease of left hip, aged three and a half years, of Boston, visiting Denver, was brought to me by its parents. The child was put to bed with extension weight and pulley, and the mother instructed in the use of extension in the proper direction, and being very intelligent she aided me well, so that in less than a week the child was ready for the brace, the contracted tendons not requiring tenotomy. The brace was applied June 7th; but there was some trouble with it, as it frequently needed repairing; and soon the child left for its home; and is now, I believe, under the care of an orthopædic practitioner of Boston.

As another example of the care required to prepare a patient with hip-joint disease for the traction splint or brace, I shall cite the following case sent to me by Dr. Carlin, of Denver:

"A. M., æt. five years, had hip-joint disease of the left hip, distinct, but in an early stage of development. Believing that hip-joint disease in its earliest periods may, sometimes, be cured by simply rest in bed, with an extension weight to the limb, I confined this child to bed. The improvement was so great that after a few weeks I omitted the extension during the day, and relied on extension at night alone. Soon she became lame again and I ordered a splint for her of Tiemann & Co. For some reason, while waiting for the splint to be made, neither during the day nor at night was extension applied, and when the splint came the limb was so contracted that it was necessary again to confine her to bed for two weeks with extension weight, before the soreness had sufficiently left the joint, and the limb had became straight enough to use the brace, which was September 5, 1888.[1]

This preparation for the use of an extension brace is, indeed, generally a very simple matter, but often requires tenotomy, and sometimes *brisement forcé;* and it is the neglect of such preparation that causes failure in the use of the traction brace. There are cases, however, which do well, and relapse because the brace is discarded too soon. There are others also, in which a scrofulous vice causes a return of the disease in the same joint, or its appearance in both joints. I have had two such cases under my

[1] November 9, 1888: It was necessary to do tenotomy of the rectus femoris and adductor layers to prepare the limb properly for the splint, which was done to-day.

care within the last two years, in which, after getting very fair results, and indeed nearly curing the disease in one of them, it has hopelessly returned and in both joints.

As examples of operative treatment without mechanical appliances, I beg to refer to the following cases. The first is one in which it appeared to me quite impossible to use to advantage any apparatus for producing extension.[1]

The case was that of a child of F. R., of Denver, aged fifteen months. May 10, 1888, this male infant was brought to my office; his thigh was very much swollen, flexed on the pelvis, and adducted; the hip elevated and the limb shortened. At first, however, it was extremely difficult to determine that the hip-joint was diseased; but it was easily perceived that a large abscess existed in the upper part of the thigh; the general condition of the child was good, with no discoverable history of its having received a blow or injury to the hip, yet the disease was of recent origin. Dr. J. E. Lowery, of Denver, having given him chloroform, I opened the abscess, made a suitable counter-opening, washed out the abscess cavity with Thiersch's boro-salicylic acid solution, and dressed it with antiseptic materials. The dressings were repeated a few times, always using iodoform liberally; at first packing the wound with iodoform gauze. After a few weeks, the wound seemed to have healed altogether; the treatment being merely palliative.

About eighteen months or two years ago, Mr. T., a prosperous German, a farmer, living near Denver, consulted me about his son, who had a stiff hip, the result of hip-joint disease. I proposed *brisement forcé*, which was declined, and the boy was taken to Europe for treatment.

June 1, 1888. This boy, aged eight years, returned to me, the parents stating that he had been under the care of von Esmarch at Kiel, after seeing me, and that Esmarch had done an operation on the hip, and removed a small piece of bone. An extensive scar over the trochanteric prominence was the site of the distinguished German surgeon's operation, which was an excision or an osteotomy. An abscess had formed on the outer side of the thigh, near the hip some months after the operation, and it was for this abscess that the parents of the boy again consulted me. Dr. Lowery having given chloroform to him, I opened the abscess and, making a counter-opening, washed it out and dressed it as in the preceding case. June 8th and 11th it was redressed; on June 19th it was well, and remained so to the time I left to attend the meeting of this Association.

This treatment suggests to me a plan that I have adopted in the management of abscesses about the hip-joint, and which I believe may obviate the necessity of excision in some cases in which the bone is not extensively diseased. When an abscess forms about the hip, open it, wash it out thoroughly with boro-salicylic acid solution, finally with a very weak mercuric bichloride solution, in a child; then put into the wound a piece of damp gauze well filled with iodoform, and firmly twisted into a cord; this acts as a drain; then seal the wound with antiseptic precautions. I have found one dressing of this kind nearly to heal an abscess, and two quite heal it.

The diagnosis of hip-joint disease may sometimes be quite difficult, in cases of hysteria or neuroses of this joint; but generally the main diagnostic symptom may be stated to be pain in the hip-joint, and confined to it, and manifested on proper manipulation; rheumatism being always a multi-articular affection. In children, however, it is sometimes difficult to decide.

April 30, 1888. Dr. Carlin called me to see a case which simulated hip-joint disease in a peculiarly striking manner; and in which he recognized an abscess about the hip in a boy aged ten years; the thigh was flexed, adducted, and the hip raised. After a careful examination of the hip-joint, and the head of the femur, which I moved freely in all directions, and without pain on firm pressure, I decided that the joint was not diseased, and that the abscess did not communicate with it. Dr. Carlin having given him chloroform, I opened the abscess, which was situated underneath the gluteus medius muscle, and near to the joint, but having no communication with it.

The above case was one easily mistaken for hip-joint disease. There was an abscess near the joint, and only the most careful examination could detect the absence of disease of the joint. But in marked contrast to it is the following case, which exhibits either extreme carelessness or ignorance of the pathology and symptoms of coxo-femoral inflammation.

J. C. D., aged thirty-two years, consulted me October 12, 1887, for what he was told was hip-joint disease. About two months previously, he fell and hurt his hip, and was confined to bed four weeks at a hospital, and was treated by a competent young physician for a contusion about the hip. On questioning this patient, who still complained of some stiffness of the muscles of the hip, he said that at no time since the receipt of his injury was he obliged to hold his thigh flexed on his pelvis to rest easily, and that he could always lie comfortably flat on his back, with both legs extended, without arching the lower part of his spine. In no stage of hip-joint disease can this be done, as we all know. My examination of him, while he was lying on a smooth, hard surface confirmed his statement, as his back and both popliteal spaces touched this surface at the same time, and he was quite comfortable. The femur was freely movable in its hip socket without any pain on pressure, it mattered not in what direction this pressure was made. His case, it seems, had been properly diagnosticated and treated at first,

[1] Bradford's method, with the child fastened on a light horizontal frame, might answer the purpose.

but doubting the correctness of the opinion of his first medical attendant, he sought the opinion of one whom he believed to possess considerable skill and reputation as a surgeon, and who gave him a certificate, of which the following is a copy; the original certificate is in my possession:

"DENVER, Sept. 13, 1887.

This is to certify that the bearer, ——, has some of the symptoms of the incipient stage of hip-joint disease, and needs careful and long-continued treatment for it, otherwise he will be a cripple for life."

Signed "——, M.D."

On the opposite side of the paper on which the above was written, is the following supplementary expression by another medical man:

"I am certainly of the above 'opinion.'"

Signed "——, M.D."

The patient told me that this doctor made no examination of him whatever.

Of all injuries to the hip-joint, an old dislocation of this part is possibly the most interesting, especially since the introduction of Bigelow's method of reduction of dislocations at this joint.

July 9, 1888. Dr. Carlin asked me to see J. M., aged thirty years, laborer, or rather miner, and came with him to my office for this purpose. The doctor thought, as I did, that possibly the dislocation might be reduced notwithstanding its long duration. There was an upward and backward dislocation of the right femur of fourteen months' standing; the shortening was two and a half to three inches. Measured by Bryant's ilio-femoral triangle, the upper border of the trochanter major, the patient lying flat on his back, corresponded to a vertical line drawn from the anterior superior spinous process. The head of the femur rested on the dorsum of the ilium above this line.

Some days later at the St. Joseph's Home (Sisters' Hospital), I attempted a reduction under ether; five successive efforts were made in strict conformity with the Boston surgeon's method, and each time as the bone reached the rim of the acetabulum it unavoidably slipped back to its misplaced position. The attempt at reduction was consequently abandoned, and a cutting operation, under strictly aseptic precautions, was proposed, but declined by the patient. It was proposed, and Dr. Carlin readily assenting, to make an extensive straight vertical incision over the trochanter, *liberate the muscles attached to the upper part of the femur by division close to the bone, as I have done in sub-periosteal resection of this joint, scoop out the acetabulum with Volkmann's sharp spoon,* and put up the limb in an immovable plaster-of-Paris bandage, and afterward at the proper time begin passive motion, *with extension,* at the joint. All of which would involve the most careful antiseptic precautions, and subsequent judicious care of the case.[1]

[1] I confess that I had, at the time, no knowledge whatever of any attempt ever having been made to reduce an old dislocation at the hip-joint by cutting down on it, though acquainted with other dislocations reduced in this manner. I simply proposed to carry out what my judgment dictated to me, under aseptic precautions, to be a practical and rational operation, of which I was willing to assume the responsibility. In the discussion which followed the reading of Dr. Ashhurst's paper on "Excision of the Larger Joints," before the American Surgical Association at the Congress of American Physicians and Surgeons, Sir Wm. MacCormac, of London, related his successful experiences in the excision of the hip-joint for old dislocations. After the detachment of the muscles about the femur in my proposed operation, and the reposition of the head of the femur in its acetabular cavity, made ready for it, I cannot, at present, see any advantages of excision over this new operation.

II. CASES OF PARTIAL EXCISION OF KNEE-JOINT, TO CORRECT ANGULAR ANKYLOSIS, ETC.

In the first of the two cases of partial excision of the knee-joint which I shall report, it was wrongly believed that the patella was joined to the condyles by fibrous adhesions only, and it was proposed to break loose the patella, and after thorough division of the hamstring tendons and adjacent fascia, by open incisions, to straighten the limb by *brisement forcé;* then by the use of a back-splint, extension weight, and graduated movements of the joint subsequently, to restore mobility gradually to the joint.

About two years ago, with the same object in view, I attempted to straighten both contracted knee-joints of a lad about eighteen years of age. Previous attempts to effect this had been unavailingly made, by mechanical means, at an orthopædic establishment, as well as by different physicians, and I thought that by the aid of the subcutaneous section of the hamstring tendons, I should be successful; but I quite failed to straighten either limb, which I thought, erroneously at the time, was due entirely to an imperfect division of the fascia by a subcutaneous operation. Consequently I determined that in future I would not rely on subcutaneous division in such cases, but resort to open section, under aseptic precautions, by which means I could cut the fascia to better advantage, and surely be able to straighten the limb.

In the following case, the patient being etherized, it was found impossible by any properly directed manual force to budge the patella, and an operation was deferred. In the meantime the following paragraph from the last edition of Stephen Smith's work on *Operative Surgery*, p. 840, 1887, met my eye: "If the joint has long been bent at a right angle, not only do the structures above the joint contract, but the condyles lengthen, so as to render it impossible to bring the tibia down to its proper position, even by dividing the resisting tissues, as the hamstring tendons; in such cases the extremities of the condyles have been cut away successfully with antiseptic precautions." This is quoted from Lister. Hence, at my second appointment, I went prepared to exsect a part of the condyles, if required, which

was done, and the limb straightened; and then it was perceived that without such exsection all attempts to straighten such limbs must prove failures; and the reason is this: The growth of the extremities of the femur and tibia necessarily occurs in the direction of their length; and if the joint has been a long time bent, the epiphyses of the bones, in such cases, forming an angle with each other more or less acute, the articular surfaces adapt themselves to each other somewhat like the abutting ends of the rafters of a house. Hence, Lister, as quoted by Stephen Smith, found lengthening of the condyles, in the long-bent position of the knee-joint, to interfere with straightening of the limb, and resorted to partial excision, which I did also successfully in the two cases which I now propose briefly to report.

CASE I. *Ankylosis of knee-joint; partial excision.—November 3, 1887.* Charles B., aged thirteen years; ankylosis of right knee-joint of several years' duration; unsuccessful attempt to dislodge the patella, which was firmly united by bone to the femur. Further attempts were deferred to a cutting operation. Present: Drs. H. A. Lemen and P. V. Carlin, of Denver. Fig. 2 shows appearance of patient before the operation.

FIG. 2.

FIG. 3.

9th. Partial excision of the knee-joint. Open section of the hamstring tendons as a preparatory measure to straightening the leg. It was then discovered that the joint surfaces abutted together in such a manner, that to straighten the leg was quite impossible without a partial excision of the joint; and this was made still more apparent after the joint surfaces were exposed to view. An incision was made on the external side of the joint, as shown at Fig. 3, along and below the external border of the patella, and an incision at right angles connected with this below. The patella was detached from its bony union to the femur, by means of saw, chisel, and mallet; *but the patella was not removed;* Drs. H. A. Lemen and Carlin assisting me. Sufficient bone was removed—which I here exhibit to you—through the external cut to permit the limb to be brought to a straight position, when the knee was dressed with antiseptic precautions and put in a wire splint, with extension weights applied, and ice bags put to the knee. *Care was taken not to divide the external lateral ligaments or any of the ligaments about the joint.* The average temperature for the first week was 99.5° F.

FIG. 4.

24th. Changed dressing and removed drain tubes.

29th. Changed dressing; wound nearly healed.

Dec. 10. Dressed wound, and substituted plaster-of-Paris splint for wire splint.

18th. Removed dressing; cured; continued, however, to wear a splint to support the knee and secure firm ankylosis, which afterward took place.

March 14, 1888. Patient was photographed.

Fig. 4 shows a wood-cut from a photograph of the boy; exhibiting also on the outer side of the leg, opposite the knee-joint, the scars of the incisions; and more posteriorly the scar of the lower drain tube hole.

CASE II. *Ankylosis of knee-joint; partial excision.*—Edward L., æt. eleven; fibrous ankylosis of right knee-joint; joint free from inflammation; patella firmly united to condyles by bony union.

Operation, January 31, 1888. Partial excision of knee-joint.

Fig. 5, a wood-cut, from a photograph taken before the operation, shows the appearance of the knee and right leg at that time; the boy's general condition being excellent.

FIG. 5.

FIG 6.

Preparatory section of the ham-strings, and popliteal fascia by open incision; assisted by Drs. W. W. MacGregor and J. E. Lowery; the latter gave ether. Operation done as in preceding case, *by an external incision, and the ligaments were respected—that is, were not cut—and the patella was left in place*, and the same kind of after-treatment as in the preceding case was adopted, with the exception, that hydronaphthol as an antiseptic was used exclusively in the dressing. *Extension and ice bags to joint*, as in preceding case. The extension during the first week or two allays pain, by controlling muscular spasm, and, in conjunction with the ice bags, keeps down inflammation, even in those cases in which there is no hope of obtaining motion in the joint subsequently; and, in this way, extension is a valuable aid in the treatment.

February 2. Temperature 100° F.; it subsequently fell to 99°, and was this on an average during the first week.

14th. Changed dressing; inserted a rubber drain tube; some suppuration; knee swollen; the hydronaphthol gauze caused considerable irritation; he said it burnt him immediately it was applied. Discontinued hydronaphthol dressings altogether, and two days afterward returned to my usual dressings of mercuric bichloride and iodoform.

16th. Changed dressings; rubber tube acting well; used dressings of mercuric bichloride and iodoform.

22d. Changed dressing; large ulcerated surface around the drain-tube holes; inflammation exterior to the joint, which is doing well; removed drain tube.

March 5. Changed dressing; ulcerated surface healing rapidly. After this I saw him quite often, and twice curetted the drain-tube holes, which greatly accelerated their healing.

June 11. Drain-tube holes all healed; and after obtaining his photograph, he was discharged cured, and he left a few days afterward for his mountain home in Middle Park, Colorado, wearing a splint to favor firm ankylosis of the knee-joint. Fig. 6 shows a wood-cut of him after the operation.

July 25. Relapse: After leaving Denver he was exposed to a snowstorm in crossing a high range of mountains, and while camping, it snowed on him during the night. He was attacked with a severe cold and inflammation of the knee-joint, and finally, after more than a month of suffering, was taken to Denver, where I saw him again July 25th, in a most pitiable condition—worn, haggard, with knee-joint much swollen and intensely painful, and with a temperature of 103.5° F. Dressed his wound.

27th. Having been removed to the Sisters' Hospital at Denver, Dr. Lowery gave him chloroform, and I opened the joint in several places, and made counter-openings above the knee, from which escaped about half a pint of the most offensive smelling dark-colored pus. The wound was thoroughly irrigated with a mercuric bichloride solution, and injected with an ethereal solution of iodoform, and then a number of iodoform gauze drains, such as I have already described, were introduced, and the wound was sealed with antiseptic precautions.

August 5. Knee dressed as on the 27th of July; *doing splendidly and not a drop of pus;* temperature normal.

21st. Changed dressing; slight suppuration; patient walking about with a crutch.

30th. Dr. Lowery gave him chloroform, and I curetted the sinuses with Volkmann's sharp spoon; new felt splint applied.

Sept. 7. Dressed wounds aided by Dr. Lowery, who was left in charge of the case during my absence in attendance at this Association.[1]

I believe that even after a knee-joint has begun to assume a permanently angular ankylosis, which will eventually lead to a lengthening of the epiphyses in such a manner as to make them meet together like the joined ends of two rafters, as in the two cases just reported, that much may be done to restore the limb to a normal position as the following case will illustrate.

Case of scrofulous disease of the left knee-joint of several years' standing; tenotomy; extension.—February 1, 1888. Dr. John P. Kelly, of Golden, Colo-

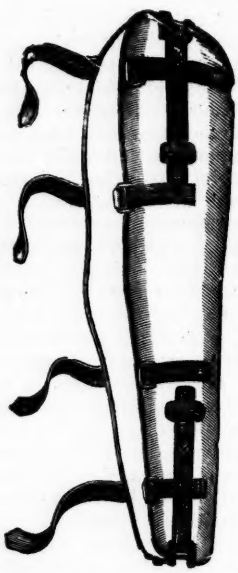
[1] November 9th: His condition is excellent; two small sinuses need curetting; he walks to my office to be treated; limb ankylosed in straight position.

rado, called me to Golden to amputate a cancerous breast, and while there requested me to see a little girl, Jennie B., aged nine years, very much emaciated, and suffering with a painful scrofulous disease of the left knee-joint. At the suggestion of Dr. Kelly she was placed under my care.

Fig. 7 is a wood-cut engraving copied from a photograph of her, and exhibits her appearance

FIG. 7.

Fig. 8.



before treatment. The patella was freely movable, and the joint was not ankylosed. There was a subluxation backward of the tibia, and the characteristic overhanging knee-cap and condyles, as shown in the engraving.

April 4. She was etherized, and Drs. Clough and Lowery, of Denver, assisting me, I divided the ham-string by open incision. After freely dividing the ham-strings and all contracting fascia, I could not entirely straighten the limb owing, as I believe, to the pathological condition mentioned above, already taking place in the joint. After the wounds in the popliteal space were sutured with catgut and sealed with antiseptic precautions, I placed her in bed with an extension weight and pulley, after Sayre's method, but modified in this manner after a few days, because of excoriation of the calf of the leg. One pulley was put in the ceiling of the room immediately over the leg, which rested on a soft pillow, and there was just enough weight, about two pounds, attached to the pulley to support the leg gently, and to the webbing of the adhesive plaster attached to the sides of the leg were a weight and pulley to make extension in a line with the partially corrected deformity, after section of the ham-strings, but enough weight only to cause gradual extension and without pain, and the weight after a few days was slightly increased; and the line of deformity gradually brought to a straighter normal line as the case progressed toward cure, so that on May 13, 1888, I applied my new knee-joint extension brace with complete success.

It is so simple and comparatively so inexpensive; affords such complete relief; and is so easily applied by the mother of the child or attendant that I believe when it has been once tried, that it will invariably give entire satisfaction for the purpose for which it is used—that is, to procure relief from pain in making an easy, comfortable, and continuous extension and counter-extension of an inflamed and painful knee-joint.

I must give the caution, however, which would hardly seem necessary, that before the use of this brace the limb must be made ready for it; that is, made straight by the appropriate preparatory treatment as in hip-joint disease.

Fig. 8 shows an engraving of the instrument from a drawing which I made; and Fig. 9 shows a drawing exhibiting the manner of applying the adhesive plaster above and below the knee-joint, with pieces of webbing for making the extension and counter-extension. The dotted lines represent the adhesive plaster underneath the bandage.

Fig. 10.

FIG. 9.

The instrument is made in the following manner: Leather might be preferable, but a piece of Russian felt is moulded accurately to the leg and thigh; upright pieces of brass or light iron are riveted to each side of the brace above and below, as seen in Fig. 8, and at each distal end of these pieces of brass is a little roller, over which rolls the webbing attached to the adhesive plaster above and below the knee; thus extension and counter-extension are secured, and an elastic knee-cap and buckles fasten the apparatus about the limb, as seen in an engraving from a photograph of the girl taken about the 15th of May (see Fig. 10). To strengthen the instrument a flat steel bar may be riveted along the back of it. Buckskin or chamois should be sewed along the edges, and the projecting points on each side of the little rollers should be covered with chamois to prevent irritation of the skin.

In infants the manner of managing acute or chronic inflammatory diseases of the knee-joint is confessedly difficult, and I believe the following successfully treated case worthy of brief mention:

April 17, 1888. Dr. L. H. Wood, of Denver, recommended the parents of a little boy, aged eighteen months, to consult me concerning a subacute inflammation of the knee-joint of several months' standing. I adjusted adhesive plaster with pieces of webbing attached to each side of the leg from just below the knee, and I bandaged the leg and thigh from the toes up. The child was chloroformed and a silicate of soda bandage applied over the first bandage; but while applying the silicate of soda bandage, firm extension and counter-extension were made at the knee-joint, and the limb straightened as much as possible without undue force. The pieces of webbing, sewed to the adhesive plaster, for making extension were on each side of the leg above the ankle left free. At night and during the day while the child was asleep an extension weight and pulley were attached to the webbing, the bed being raised at the foot.

May 1. Substituted an adjustable felt splint, moulded accurately to the limb, for the silicate of soda bandage.

13th. New dressing.

20th. Dressing and new splint.

25th. Ice-bags to knee, and their continued use for ten days or longer.

June 25. Dressing and new splint; saw him July 5th and 7th.

July 14. Cured; all inflammation had left the joint, and he could move it freely without pain, and walk on the leg comfortably. As a precautionary measure, I advised the continued use of extension at night.

III. Resection of the Elbow-joint for Gunshot Wound. New Apparatus for Extension and Counter-extension at this Joint.

The management of the elbow-joint, after resection, is a subject that has always more or less interested surgeons; and I think that the apparatus tha I used in a recent case will commend itsel f to the use of military and civil surgeons. This instru men is equally applicable to the treatment of acute in flammatory diseases of the elbow-joint in their earlier stages, as after resection.

Dec. 7, 1887. Mr. C., a deputy sheriff, while attempting to arrest a desperado near Deer Trail, Colorado, was shot through the right elbow-joint; and I here show you the bones that I removed by resection at night by lamp-light, assisted by two cowboys, with other cowboys and deputy sheriffs looking on. The resection was done through a posterior longitudinal cut, which joined the two bullet-holes of entrance and exit. The wound was dressed with scrupulously antiseptic precautions; my cowboy assistants cleaning their finger-nails with a nail-brush, and scrubbing their hands and arms in repeated changes of hot water and soap in the most approved manner. The elbow and arm were adjusted in a felt splint, and some hours afterward he was removed to Denver and placed at the County Hospital, where I saw him every day or two. Average temperature 99° F.

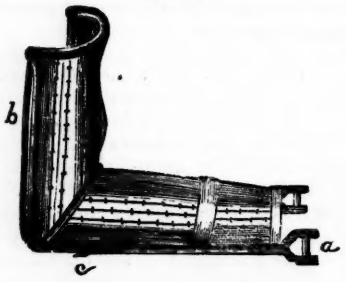
Jan. 6, 1888. Applied my apparatus for extension and counter-extension at the elbow-joint. (See wood-cut engraving of him with splint applied, copied from a photograph, as shown at Fig. 11.) The outside

Fig. 11.

bandage on the forearm, that keeps the splint in its place, has been temporarily removed so as to show its action. The webbing for making extension passes over the little rollers at the lower end of the splint or brace, as seen in Fig. 12 at *a*. In the engraving, copied from the photograph of Mr. C., there is shown a loop of rubber tubing attached to the webbing on the outer side of the arm, the same arrange-

ment exists also for the inner side of the arm. To each piece of rubber tubing is a chain, which can be caught at any link desired into a hook at each

FIG. 12.



side of the brace near its bend at the elbow, as seen at *c* in Fig. 12.

Application and action of the brace.—The forearm having been shaved, and a gauntlet bandage properly applied from the tips of the fingers to the wrist; pieces of adhesive plaster with webbing sewed to these are applied to the inner and outer sides of the forearm, and covered by a bandage from the wrist, joining with the gauntlet bandage. In the meantime the arm is held between pronation and supination, with the thumb directed upward. Traction on each side of the arm by means of the webbing, which is reflected over the little rollers at the lower end of the brace, pushes the whole brace backward, so that the upper vertical portion of the brace, padded and fitted to the front part of the arm, in pushing the arm backward, makes counter-extension at the elbow-joint; while the pieces of adhesive plaster, to which the webbing is sewed and reflected over the little rollers, pull the forearm forward and make extension at the elbow-joint. The brace is steadied and kept to its place by an outside bandage on the forearm. The brace is also secured by a bandage to the arm. In the use of this brace by Mr. C., extension and counter-extension at the elbow-joint were accomplished in a most effective manner, and afforded him immediate relief from pain, and, indeed, made him perfectly comfortable, and facilitated the rapid healing of his wound. The instrument is a stout wire brace smoothly padded. In applying it a short felt splint or piece of pasteboard, lined with cotton batting, should be placed behind the arm just above the elbow to prevent the bandage, which passes between the rod at *b*, in Fig. 12, and the brace, and then around the back of the arm, and also around the brace, from compressing uncomfortably the soft parts on the back of the arm.

Jan. 19, 1888. Mr. C. came to my office, and afterward was photographed.

28th. Wound healed; removed splint; he came afterward to my office to have passive motion practised.

Feb. 6. I broke up the adhesions, under ether, at the hospital; arm extended during one week in a straight position by means of adhesive plaster, weight and pulley; ice-bags to elbow-joint.

13th. Removed dressing, and stopped extension in straight position; pronated and supinated and flexed arm thoroughly under ether; used extension apparatus, as shown in engraving from photograph, which afforded him the greatest relief and comfort.

June 20. I received a letter, probably written by his wife, expressing his gratitude, and saying that he was thrown from a wagon, hurting his arm, and that from this accident he had suffered more than from the gunshot wound. I have not heard from him since; but when he quitted me there was good motion in the joint.

In treating inflammation of the wrist-joint, I think the new Russian felt, as made by Tiemann & Co., is preferable to the sole leather used by Sayre; and no delay in application is occasioned, as with the sole leather, waiting for it to dry; besides, the use of ice-bags is a valuable addition to the treatment. The following case is an illustration:

April 27, 1888. Mr. S., of Denver, aged thirty, had acute inflammation of the right wrist-joint, with the most atrocious pain; applied Sayre's adhesive plaster method, and repeated the same, but with the quickly moulded Russian felt instead of leather; immediate relief; ice-bags to the dorsum of the wrist.

INDICATIONS AND CONTRA-INDICATIONS FOR ALTITUDE IN THE TREATMENT OF PULMONARY TUBERCULOSIS.[1]

BY FREDERICK I. KNIGHT, M.D.,
OF BOSTON, CLINICAL PROFESSOR IN HARVARD UNIVERSITY.

IT is generally admitted at the present day that the study of the climatic relations of pulmonary tuberculosis is an exceedingly complicated one, not only with reference to the origin of the disease, but also with reference to its progress and termination. It is also now generally admitted that an outdoor life in the purest attainable air is one of the most desirable conditions to secure for those patients affected with the disease, in whom its arrest is hoped for.

The purest, most nearly aseptic air is found on the ocean and at high elevations; but as, in order to be of lasting benefit, stay in the new conditions should be considerably prolonged, ocean air is out of the question for most patients, and one looks to the mountains for a place of prolonged residence. Here we have also, in the beginning at least, an increased respiratory activity, which acts beneficially on the nutrition of the pulmonary parenchyma.

It is, however, well known that high altitude disagrees with and is thoroughly unsuited to some

[1] Read at the meeting of the American Climatological Association. Washington, September, 1888.

tubercular patients, and it is for the purpose of guarding a part, at least, of these patients against an experiment in climate, the result of which might be an irremediable injury, that I ask for a discussion upon a few propositions laid down in a rather tentative way.

In considering the question of high altitude in this paper, I will restrict the application of this term to such elevations as will usually allow of prolonged residence without danger of anoxyhæmia (4000 to 6500 feet above the sea-level).

The contra-indication to altitude in the treatment of patients with pulmonary tuberculosis may be found to pertain to some general factor, such as the age or temperament of the patient, to the type or stage of the disease itself, or to some complication of other disease.

Is there any limit of age which would forbid or render less promising the residence of a tuberculous patient in high altitudes?

I am inclined at present to put such a limit at about fifty years. After that period the chest-walls are less elastic, the patient is more susceptible to cold and sudden changes of temperature, and at the same time less inclined to take active exercise.

Is there any temperament which should be prohibited a trial of the high altitude treatment?

It may be said that the energetic stimulation of the mountain air is suited rather to the phlegmatic than the nervous temperament, and that individuals of the latter type sometimes do very badly in it. These patients usually have an irritable heart, frequent pulse, and inability to resist cold. We must be sure, however, before denying a patient the benefit of this treatment on account of temperament, that we classify him properly, for there are patients, weak and irritable from disease, who at first might strike us as of a neurotic nature, but who are not constitutionally so, and who will improve quickly under mountain stimulation.

What is there in the nature or condition of the disease itself which may contra-indicate residence in a high altitude?

For the sake of convenience, I will make use of the types of the disease employed by me in a previous paper.[1]

1. Patients presenting the earliest physical signs of tuberculosis of the apex, who have as yet shown little, if any, general disturbance from the disease, and who complain only of morning cough and expectoration.

These are the patients who are known to recover under a great variety of conditions, both climatic and social; but it seems to me, after considerable experience, that a larger proportion have recovered under the high altitude conditions than under any other. With a few exceptions, such as for general reasons previously mentioned, I should recommend high altitude for these cases.

2. Patients with more advanced disease, showing some consolidation, but no excavation, nor any serious constitutional disturbance.

High altitude is suited to many of these cases also; but if a considerable area of one lung, or the apices of both are consolidated, if the pulse and temperature are both always above 100, it may be well to try some low altitude first. When quiescence in the morbid processes is established, a change to higher altitude can be made.

3. Hemorrhagic cases. Patients in whom pulmonary hemorrhage has been, perhaps, the earliest, and a frequently recurring symptom, but in whom there is, as yet, no marked febrile reaction, nor much physical evidence of disease.

In my experience this class has done particularly well in high altitudes. The tendency to hemoptysis seems to be diminished rather than increased. This seems to me to be explicable more through improvement in nutrition of the lung parenchyma than by change in the atmospheric pressure, for the lung cannot be considered an internal organ, as far as atmospheric pressure is concerned, but must be considered as subject to the same pressure as the skin, and, therefore, in high altitude more liable to superficial congestion and hemorrhage. Theoretically, therefore, there was good reason for the old custom of avoiding the sending of such patients to the mountains, but practically I have never experienced ill results from so doing.

4. Patients with advanced disease; those with cavities, or severe hectic symptoms.

Patients with advanced disease, or, better stated, with great area of lungs involved, should not be sent to high altitudes. The demand for increased respiratory activity, which cannot be answered, is apt to be quickly followed by fatal result. The existence of a small cavity, in a case in which the disease had became quiescent, would not contra-indicate high altitude. Hectic symptoms would do so.

5. Patients in an acute condition.

None of these should be sent into high altitudes.

6. Cases of so-called fibroid phthisis or interstitial pneumonia.

If the patient is over fifty years of age, if his heart is dilated, or if there is great bronchial irritability, producing harassing cough, he should not be sent into high altitude.

7. Patients convalescent from acute pleurisy or pneumonia, in whom the eruption of tubercle is dreaded.

Unless otherwise contra-indicated, elevation is particularly suited to this class of cases.

[1] On the selection of a climate for patients with pulmonary tuberculosis. Boston Medical and Surgical Journal, April 5, 1888.

8. Patients in whom the tubercular process has seriously invaded the larynx.

It is generally recommended by those familiar with them, that these patients be not sent to high altitudes. In view of modern methods of local treatment, they certainly should not be sent there to the deprivation of this; but should they be sent to high altitudes if they can also have the benefit of good local treatment? With others I have been prejudiced against sending these patients to the mountains, but it may be that this prejudice is groundless for high altitudes which are free from dust, and that they do no worse here than anywhere, the disease when it has once seriously attacked the larynx usually pursuing an unfavorable course. I know that some of the resident physicians of high altitudes do not share this prejudice.

9. Those with complications of other diseases.

Much care should be exercised in regard to cases of this class.

One of the first in importance to suggest itself will be cardiac disease. Cardiac dilatation should preclude the consideration of altitude; and it would be safer to say the same in regard to most cases of hypertrophy, though if this be moderate and of slow development, the patient might be allowed some elevation. There are many patients, however, who are unwarrantably denied the benefit of high altitude on the ground of heart disease, *e. g.*, patients with a cardiac murmur the result of endocarditis quite long ago, in whom there is no evidence of deranged circulation, and no sign of cardiac enlargement. Of course, the mere existence of a murmur is no evidence of cardiac condition liable to be unfavorably affected by rarefied air. On the other hand, there are some patients with nervous derangement of the heart who had better be advised against high altitudes. These, however, would usually be of the general neurotic type before spoken of.

Disease of the large bloodvessels is an evident contra-indication.

Patients with bronchial dilatation or pulmonary emphysema are not usually recommended to high altitudes, presumably on account of diminished respiratory area. I have not had much personal experience with such patients in high altitudes, but would like to hear from those who have had. There are some with excessive bronchial irritability who certainly do better in lower regions.

In regard to renal disease, while it is admitted by resident physicians that acute nephritis, like acute pneumonia, is severe in high altitudes, they claim that chronic nephritis is often benefited.

Intestinal ulceration would not contra-indicate a high altitude, but no great good could be expected from the change.

In cases of epilepsy, diseases of the brain and spinal cord, which are said by some to contra-indicate altitude, I have had no experience.

It looks to me as if the claim that heredity is a contra-indication of altitude must have originated in the mind of one who was afraid lest his percentage of cures should be lowered by bad cases, for, while admitting that patients with hereditary tendency to tuberculosis are on that account less favorable for any treatment, when taken in hand early they are especially benefited by mountain-air life.

Diabetes would seem properly to contra-indicate high altitude treatment, as its subjects are very liable to succumb to attacks of any acute disease, and these would be more liable to occur in a variable than in an equable climate.

Upon what grounds syphilis is put down by some as a contra-indication I know not.

The combination of tuberculosis and syphilis is a very unfavorable one, and liable to result badly in any climate.

TWO SUCCESSFUL CASES OF BRAIN SURGERY.[1]

BY CHARLES B. NANCREDE, M.D.,

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I AM fully warranted, I believe, in reporting the following cases at this time, without waiting for many months to ascertain the ultimate condition of the patients, because each case involves one or more of the essentially new principles of modern brain-surgery, as yet a comparatively unexplored field, accounts of each new inroad upon which should be at once published for the guidance, encouragement, or warning of those so eagerly pressing forward in the same direction.

In the annual oration which I had the honor of delivering before the Philadelphia Academy of Surgery, in January, 1888, I emphasized several procedures which, while not new,[2] certainly were *not* "known to every one," as stated in a review of my remarks; nay, more, so far as I am aware, they have never been practised in this city, although taught by Professors Agnew and S. W. Gross. I shall merely quote part of what I then said as a preliminary to the history of my first case, which admirably illustrates the practical value of some of the principles enunciated:

"The general principles governing the treatment of compound skull-fractures are strictly applicable to gun-shot wounds, so far as the bone lesions are concerned, Wharton's[3] tables so conclusively show the ultimate evils of the retention of a foreign body in the brain, that if the operation can be done without fatal injury to the

[1] Read before the Philadelphia Academy of Surgery, November 6, 1888.

[2] I need hardly point out that *no originality* is claimed, but merely the strong emphasis.

[3] Philadelphia Medical Times, 1879.

encephalon, balls should always be removed, since even primarily such injuries are certain to be followed by suppurative inflammation, which too commonly is of the diffused form, when death is inevitable. The most superficial glance at the histories of recoveries after apparently hopeless brain injuries, shows that the result was due to free drainage, as in the famous tamping-iron case, and one of extensive shotgun disorganization of the anterior fourth of the left hemisphere, which I reported to this Society some two years ago.

"*The principle of free drainage, then*, rather than the mere removal of the foreign body, is the guiding principle of the modern treatment, although to effect perfect drainage, both theoretically and practically, the course of the ball must be followed throughout and disinfected, when the missile being accessible, and capable years hence of producing serious trouble, should be removed."[1]

CASE I. *Ball wound of the anterior lobes of the brain; failure to find the ball, owing to its deflection by the base of the skull; drainage of the track; recovery.*—Henry C., æt. fifty-three years, was brought to the Jefferson Medical College Hospital, by the Police Patrol, at 7 A.M., September 15, 1888, having been found lying at the corner of Twelfth and Spruce Streets, suffering from a bullet wound of the right temporal region, about one and three-quarters inches behind the external angular process of the frontal bone, and the same distance above the zygoma, the ball-track passing downward, forward, and inward to the bone, which was bared and slightly depressed. The man presented no signs of mental or cerebral disturbance, beyond what could be readily accounted for by the ascertained fact that he had been on a week's spree. He slept quietly for some hours after admission, and at 1 P.M. he was etherized at the clinic, when, assisted by my colleague, Dr. Barton, I proceeded to operate as follows:

A large semilunar flap was freely reflected, exposing a slightly starred and depressed portion of bone directly over the course of the middle meningeal artery, but no *perforation* was apparent. Convinced that penetration had occurred, with partial replacement of the small, trapdoor-like fragment from intracranial pressure, I trephined, removing a number of depressed fragments of the inner table, which enabled me to see a perforation of the dura mater, and recognize that the middle meningeal artery was wounded.

After partially arresting the very free hemorrhage from this vessel, and enlarging the bone opening with the ronguer, the patient's head was placed so as to render the ball-track as nearly vertical as possible, when the aluminium gravity probe[2] was introduced, and allowed to *gravitate* along the ball-track, which it readily did, until it struck the base of the skull—somewhere about the lesser wing of the sphenoid bone, it was thought. Thus determined, the track was carefully examined by a Nélaton's probe, but without detecting the ball. Further search demonstrating the probable truth of one of two alternatives, viz.: (1) that the ball had perforated or was imbedded in some one of the bones forming the base of the skull, which view was favored by a bared surface of bone with a doubtful sensation of perforation; and (2) that the ball had struck this bared portion of the base, and had been deflected, burying itself in the opposite frontal lobe; this latter is the view I am inclined to hold.

The manipulations with the brain proper must have occupied fully half an hour, comprising the repeated introduction of probes and forceps, the length and frequency of which manipulations I wish to lay stress upon. Failing to find the ball, a drainage-tube was carried along the whole track of the wound in the brain, and a careful antiseptic dressing was applied, all hemorrhage from the middle meningeal artery having now ceased.

There was little, if any, shock from the operation, no symptoms of paralysis or paresis at any time; no visual, aural, or olfactory disturbances, and, in fact, no cerebral symptoms beyond some slight hebetude and a moderately severe headache during the first five days, which returned partially on a few occasions—usually after dressing the wound—but was promptly relieved by a laxative. Rest in bed, milk diet, and an occasional laxative, comprised the after-treatment.

September 30. Prof. Victor Horsley, of London, saw him with me to-day, and concurred in the diagnosis as to the position of the bullet, finding nothing abnormal in the pupils, reflexes, sensation, or motion.

His temperature before operation was 100° F., reached 101.1° the same evening, touched 101° on the seventh day, and during the second week was about 99.5° at night, 98.5° in the morning, after which it kept below 99°. The pulse was always about normal as to frequency, etc.

I would call attention to some important lessons taught by this case, viz., that the gravity probe will readily, surely, and safely follow the course of a bullet through the brain; that prolonged manipulation of the brain, if guarded by reliable antiseptic precautions, is harmless, and that thorough drainage and disinfection of ball-wounds of the brain will avert that generalized suppuration, the result of infection, which proves so fatal after such injuries. This is the second case recently in which I have introduced a drainage-tube in the bullet-track in the brain with recovery of the patient; the one here reported returned to Boston four and a half weeks after the accident, a minute granulating point remaining, suggestive of a fragment of dead bone.[1]

It is interesting to remark, that the wound I made healed per primam, without suppuration, while the ball-track in the soft parts, having been exposed for some hours before antiseptic measures were instituted, after sufficient time for development of the microörganisms had elapsed—*i.e.*, about one week—presented a slight amount of suppuration. Had the opposite extremity of the wound-track been at an accessible portion of the skull, I should have unhesitatingly trephined at that point, and would, probably, have then been able to find and extract the missile.

CASE II. *Excision of the thumb-centre for Jacksonian epilepsy; recovery, with non-recurrence of the*

[1] THE MEDICAL NEWS, January 28, 1888.

[2] Fluhrer's.

[1] I have recently learned that this man has remained well.

attacks.—Charles L. R., æt. twenty-seven years, with a good family history, containing no record of epilepsy or of any chronic neurosis, states that up to nine years of age he was in perfect health, at which time he was struck upon the left parietal region with a piece of wood with such violence as to be rendered unconscious for three hours. Immediately after regaining consciousness he was seized with a convulsion, which recurred three times in rapid succession; he is positive that it was right-sided chiefly, and, he is told, resembled those which he has recently had. For the next three months he had a diurnal paroxysm, followed by an intermission of two weeks. Next in order was a period of five months, when the fits were repeated three to four times daily, again to be followed by a two weeks' intermission. From ten to fifteen years of age he averaged five seizures a week, while from fifteen to twenty years he was attacked slightly less frequently, averaging only about four fits a week. From twenty years of age until May 7, 1888, the number of attacks increased, so that while he has always had at least a diurnal attack, they have varied in number from this up to forty per diem.

He has been under treatment at various institutions, such as Bellevue Hospital, New York, and the University Hospital, Philadelphia, without benefit, until on May 7, 1888, Dr. Steinbach removed by trephining, at Blockley Hospital, an inch and a half button of very dense bone from the middle of the left anterior parietal region, the posterior segment of the trephine cut slightly overlapping the line of the Rolandic fissure; at this time a scar in the scalp overlying the portion of bone removed, was excised, because pressure upon this cicatrix excited the paroxysms, which, as I am informed by Dr. C. K. Mills, *commenced on the left side—i. e.*, were evidently dural, or, at least, of fifth pair origin. The button was replaced, the wound did well, and the paroxysms did not recur except once, ten days after the operation, until September 29, 1888, a period of nearly five months, when he came under my care, and was admitted September 1st to the Jefferson Medical College Hospital.

August 3, 1888, Dr. W. W. Keen admitted this man to his wards at St. Agnes's Hospital, where he removed the partially necrosed button of bone from a bed of granulations, a suppurating sinus leading down to the fragment.

A careful study of about twenty-five attacks which he had in the hospital during the three days prior to the operation demonstrated that the following order of phenomena was always observed: A sharp pricking pain darts from the seat of the injury toward the median line of the head, a numb feeling is sometimes experienced in the right leg, the right side of the face flushes, and often his vision becomes hazy with flashes of light before his eyes. These prodromata proceed so slowly, that the man asked to be allowed to lie down, recognizing that an attack was coming on. Almost coincidently with these sensations the right thumb is strongly flexed upon the palm, the wrist and fingers are next extended, with only partial action of the interossei, for there an imperfect "claw-hand" formed; the forearm and hand then become strongly but slowly pronated, when flexion at the elbow with rigid fixation of the extremity in the position just mentioned, obtains. Closely following these movements, the head is rapidly and powerfully flexed laterally to the right, with marked rotation to the same side; the tongue is thrust out to the right between the rigidly opened jaws; coincident with all which is conjugate ocular deviation to the right. These movements are all tonic, occupying about nine-tenths of the paroxysm, to be followed by generalized clonic movements, most marked upon the right side, occupying the remainder of the period; the loss of consciousness is always complete.

I had the advantage of studying three of the paroxysms in conjunction with my friend Dr. Morris J. Lewis, who kindly noted the sequence of the phenomena, as above recorded.

The day previous to the operation, after careful shaving, cleansing, and disinfection of the scalp *a la* Horsely, with the aid of Dr. M. J. Lewis, I located the fissures of Rolando and Sylvius, the former of which I marked with a point of nitrate of silver, and the latter at its commencement only by the same agent; in addition, the presumed position of the thumb-centre, which it was proposed to remove, was marked out upon the scalp at the exact position where after the operation it was found to lie. Dr. M. J. Lewis's modification of Thane's and Horsley's method, Hare's method, and the ready method of Lucas-Championnière, the latter only for determining the bregma, were used to locate the Rolandic fissure, which the after-evidence afforded by the operation proved to have been absolutely correct, although the man's head was so exceptionally large as to require a lengthening by some inches of Dr. Lewis's instrument, which allowed for a head measuring thirteen inches. A thorough cleansing, renewed disinfection, and a bichloride dressing, were in turn made use of, and the patient remanded to the ward. Up to two o'clock on this day the patient had *ten* attacks.

October 4th, in the private operating room of the Jefferson Medical College Hospital, in the presence of Prof. S. W Gross, W. W. Keen, my colleagues Drs. Hearn, Allis, Barton, and Wirgman, who kindly assisted me, Dr M. J. Lewis, who managed the battery, Drs. Dercum, J. M. Taylor, Usilton, Neilson, etc., my interne, Dr. McDonald, and many undergraduates, I proceeded to operate, Dr. Callender administering ether, the patient having received one-quarter of a grain of morphia hypodermatically about one and a half hours previously, and ʒij ext. ergot. fluid. in divided doses during the morning; just before profound anæsthesia was induced, the patient had a characteristic but slight paroxysm.

The extremities of the Rolandic line were marked by nicks in the bone, a large horseshoe-shaped flap, including the periosteum, was reflected, whose centre was attached to the thick and exceedingly dense fibrous tissue—fully three-sixteenths of an inch thick—which filled the old trephine opening. The attempt to control the bleeding from the scalp vessels by an Esmarch tube proved abortive. The crown of a medium-sized trephine was applied below and

somewhat anterior to the old trephine cut, to enable me to reach the non-attached area of dura and pia mater. The bone was exceedingly dense. The dura mater having been incised, it was found that, except below and behind, the membranes were firmly attached over nearly the whole of the lower two-thirds of the motor area. This cicatricial mass was carefully dissected off from the subjacent brain, the two trephine openings having been united by cutting away the intervening bony ridge, and the bony orifice enlarged in all directions by the rongeur, until portions of the membranes which were unattached to the brain were reached. All cicatricial tissue having been excised, including an ovoidal portion of the membranes, about two by two and three-quarters inches, and the fissure of Rolando found, Dr. Morris J. Lewis kindly proceeded to locate the thumb-centre by the battery.

When a spot in the ascending parietal convolution, corresponding to the focal point indicated by Horsley, was reached, *i. e.*, in the second fourth, from below upward, the thumb suddenly flexed, and at once, although profoundly anæsthetized, an epileptiform paroxysm ensued identical in its sequences and details with those observed before operation. Owing to the bone opening requiring to be slightly enlarged opposite this point, the centre had twice again to be located by the battery, each application at this spot, and this only, reproducing an attack. It is of very great interest to note this, for while the discharging centre has been several times located by electricity, I believe that this is the first instance upon record in which a generalized convulsion has been produced by the excitation by this agent of the discharging lesion, although Macewen mentions one in which the curette provoked a paroxysm. Again, although *nothing but boiled water* was allowed to touch the cortex, a strong electric current was required, and no response was obtained in the area assigned to the thumb in the ascending frontal convolution. The shoulder, elbow, forearm, and facial centres were readily picked out, and are situated as delineated by Horsley.

One-half inch of the whole breadth of the ascending parietal convolution was excised, the apex of the wedge reaching into the corona radiata; after this section had been made both the thumb motions were lost and no paroxysm could be excited by the application of the electrode to this spot.[1]

The hemorrhage from the vessels of the pia mater, which must have amounted to from eight to ten ounces, having been in great part arrested by the pressure of serre-fines applied as each vessel was divided, was now permanently arrested by fine gut ligatures very carefully tied by Dr. Allis, and the main trunk, or a branch of the middle meningeal artery, was secured by passing a needle armed with a gut ligature through the dura mater. A final irrigation with the mercuric solution was made, and the flap was rapidly sutured with silk-worm gut and fine silk, small rubber drainage tubes having been previously introduced at the two most dependent portions of the wound.

The patient now and subsequently vomited, apparently, all the ergot injected. The combined effect of opium, prolonged anæsthesia (the patient was fully two hours under ether), loss of blood, and electrical excitation of the brain produced such an alarming amount of shock that only by the most vigorous use of artificial respiration and the battery, atropia, digitalis and whiskey hypodermatically, hot water enemata, etc., was a fatal termination averted.

Upon recovering consciousness all power in the thumb was found to be lost, flexion and extension of the hand, fingers, and wrist were enfeebled, there was nearly complete right-sided facial paralysis, and loss of power of the same side of the tongue, with almost total aphasia. Unquestionably all these paretic symptoms, except those pertaining to the thumb and wrist, must have been due to the combined effect (1) of dissecting off with the adherent pia mater a portion of the external layer of large motor cells of the cortex, as was inevitable from the dense cicatricial nature of the adhesions; and (2) from the deprivation of the cortical centres of speech and the seventh and ninth nerves of their due vascular supply from the destruction of so much of the pia mater whose vessels are mainly terminal. The temperature was, at 10 P.M., 98.2°, pulse 108.

Oct. 5. The wound was dressed in the evening, the blood-stained dressings removed with the drainage tubes, and mercuric dressings reapplied. Temperature, morning, 100.1°, pulse 108; evening temperature 100°, pulse 108.

Upon the third, fourth, and fifth days the wound was redressed, and an attempt made to relieve tension which seemed great, the flap being much elevated, but the probe gave vent to only a few minims of bloody serum, proving that there was no real accumulation of wound-fluids, but that there was protrusion of the brain tissue through the bony opening. A tight stitch was cut on the third day. On and after the third day the temperature remained under 100°, usually nearly or actually normal; while the pulse fell to 70, between which point and 90 it fluctuated until the second week, when it became and remained normal.

By the fifth day after the operation the *paresis* of the hand and wrist had become almost complete *paralysis*, only the most prolonged efforts of the will *at times* producing slight movements of flexion *when the wrist was extended.* This condition persisted for thirty-six hours, when it rather suddenly improved, coincidently with the subsidence of the elevation and tension (?) of the flap; at the same time the aphasia and seventh and ninth pairs' paralysis began to disappear. About the eighth day, doubtful movement in the thumb was noted, which by the tenth day amounted to distinct but feeble flexion yet the grasping power of the other fingers was strong; while at the end of twenty days the patient had regained all the movements and power of the hand, except that the thumb was weak, and while he could unbutton his vest, he could not *button*

[1] No more of this centre was removed, which is said by Horsley to extend into the ascending frontal convolution, because of the impossibility of locating it by the battery and on account of the belief that much of his trouble was due to the extensive meningeal adhesions which had all been dissected away.

it, *i. e.*, the coarser movements remained while the more delicate were, as was to expected, lost.

The patient's general condition was throughout excellent, the stitches were removed, some on the eighth, the remainder on the eleventh day, except two which had been overlooked, while not one drop of pus formed. Becoming impatient of restraint the man eloped October 28th, twenty-four days after operation. So far no convulsions have occurred, but it is, of course, entirely too soon to decide whether the operation will permanently relieve the paroxysms.

In conclusion, I am inclined to criticise my procedures as follows: I believe that morphia was injurious and conjoined with the ether tended to produce the marked respiratory failure, while it can hardly be necessary in operations for epilepsy in which the excised portions of brain are not usually large and are never deep-seated. Electrical excitation of the encephalon is injurious, especially with the strength of current I was compelled to resort to, and in consequence the desired point once located should immediately be marked and removed, to avoid the necessity for a repetition of the application. Anæsthesia, especially when induced by ether and preceded by morphia, should never be prolonged a moment more than necessary, and should not be pushed to its extreme limits. As a corollary to this, the mapping out of the Rolandic fissure and other points on the scalp should be done the day before, as I did, with some indelible agent, so that neither hurry in determining these all essential points nor *prolongation* of the anæsthesia will be necessitated.

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THE POLYPNŒIC CENTRE.

Preliminary Note.

BY ISAAC OTT, M.D.,
OF EASTON, PA.

ON a hot day animals like the dog are seen to breathe very rapidly in order to keep themselves cool. To this state the name of polypnœa has been given by Richet. In rabbits etherized and the cortex removed, I have found that removal of the corpus striatum and the parts between it and the optic thalamus abolishes the polypnœa, although the external temperature was elevated. If the corpus striatum and the parts adjacent are electrically irritated at an ordinary temperature the respirations are doubled or trebled in number.

This discovery adds another proof that the basal heat centres are the regulators of body-temperature. For upon these heat-centres antipyrin acts to reduce temperature, and through the basal heat-centres septic poison produces fever.

Exact localization will be published hereafter.

MEDICAL PROGRESS.

On the Surgical Aspects of Typhlitis and Perityphlitis.—DR. WILLIAM T. BULL, of New York, at a meeting of the Medical Society of London, on November 5th, read a paper on the diagnosis and treatment of typhlitis and perityphlitis from a surgical point of view. For the purposes of a brief summary, he divided these cases into three groups: 1. Ten cases in which abscess was opened by incision through its walls without opening the peritoneal cavity. In these cases the operation was performed within from seven days to six weeks of the commencement of the attack, and was successful in all, thus showing the advantage of the extra-peritoneal operation. 2. Six cases, in which the peritoneal cavity was opened for supposed perforation. The earliest was performed thirty-six hours and the latest five days after the commencement of the attack. Two of these cases proved fatal. 3. This group comprised only a single case, in which the abdomen was opened on the third day in the presence of threatening symptoms. No pus was found and no evidence of peritonitis, but the pelvis was full of old adhesions.

Referring to the fact that the necessity for early operation in threatened peritonitis had mainly occupied their minds, he observed that it was a universal comment in such cases that the operation should have been performed earlier. He said that while they preached early intervention their practice was not always early enough to save the life of the patient. He urged that there were good clinical reasons for preserving the designation of perityphlitis, since the exact nature of the case was not often easy to make out on the living subject. Suppurative inflammation was induced by perforation, the pus being first in the appendix, and later finding its way into the peritoneum, or the pus might burrow through into the iliac fossa and so a secondary abscess be formed. He thought that the intraperitoneal origin and situation of the abscess might be considered as proved by the following evidence: Both the cæcum and appendix were completely invested by peritoneum, and in operations for well-developed abscess, when the thickened walls had been incised, the iliac sac had been opened up and found quite free from infiltration. Dr. Weir had called attention to this, and he had been enabled to confirm his observations.

The general rule of treatment as to opening up purulent collections as soon as detected was one which had met with general approval. The disease sometimes ended in resolution, and even suppuration might be limited by strong adhesions, and thus permit of a safe termination by a timely incision. The first advance was made by cutting down for pus before fluctuation had been detected, thus preventing the possibility of an accumulation of pus. Then came the idea that constitutional signs alone might suffice to show whether there was any pus or not. That, however, did not help them in general peritonitis from perforation. Those cases were a source of great anxiety, and would continue to be so until they insisted upon an explanatory operation before general extension of the peritonitis took place.

He preferred to use the terms "spreading" and "circumscribed" peritonitis, as marking the characteristic feature of each variety. Suppurative peritonitis might

be spreading, circumscribed, and intra-peritoneal, or there might be cellulitis with secondary abscess; he would add hepatitis with or without abscess of the liver. The author then recapitulated the symptoms of the disease, insisting on the surgical importance of fever and shivering. In such cases the abdomen and rectum should be frequently examined, tenderness and the presence of an area of dulness indicating pus. The outline of the cæcum might be made out, filled with feces, and that might exist alone or in connection with a less distinct area of induration, and the latter might persist when the former had disappeared. The end of this should be reached in about ten days. The abdomen might then become tympanitic, with debility, loss of appetite, sweating, and marked anæmia. In order to determine the presence of pus under these circumstances the exploring needle was the best instrument. He mentioned that since this plan of diagnosis was introduced he had heard of peritonitis being caused by it; but he urged that, although the use of the needle was not altogether devoid of risk, yet, if proper precautions were taken, the risk was very small.

He then narrated three cases characterized by the disappearance of the pain and the fever after a few days; but the tumor had persisted, and the needle had revealed the presence of pus in large quantities. In all these cases the abscesses were opened with a satisfactory result. At any moment the symptoms of perforation might supervene, even though the general symptoms had subsided. Severe constitutional disturbance, however, was usual, and might be held to justify interference. By the third or fourth day the tumor would be well marked in the right or left iliac fossa, and it was about this time that the needle was likely to prove useful. The more rapid the development of the symptoms the earlier should the surgeon interfere. Exploration in case of doubt was preferable to waiting for unequivocal information. The operation for perityphlitis might be laparotomy or mere incision. In washing out the cavity no solution should be used stronger than 1 in 10,000 of corrosive sublimate or 1 in 100 of carbolic acid. He then discussed in detail the steps of the operation, and read the notes of his principal cases, concluding with the aphorism that the risk of operation was less than the risk of waiting.

MR. FREDERICK TREVES said that, clinically, one heard a good deal of inflammation of the peritoneal investment and cellular tissue of the cæcum, but observed that no cellular tissue existed round the cæcum. He asked why the cæcum and the appendix should be singled out as liable to take on a form of catarrh which involved such serious consequences. He thought that it could be shown that the appendix played a very prominent part in the production of typhlitis. In seventy per cent. of the cases the appendix was found to be the source of the mischief. Referring to extra-peritoneal abscess, he said it was very difficult to understand how pus originating within the cæcum could find its way outside. As Dr. Bull had pointed out, it was very rare to find pus round the cæcum, except in connection with pus inside the peritoneal cavity. He endorsed the need for rest, etc., but added that many people would hesitate as to the early employment of the needle. Personally, he considered the procedure somewhat risky. He thought it was exceedingly bad practice to ligature and cut off the appendix, which, after all, was an integral part of the intestine. When removed, the edges ought to be united by a continuous suture, or joined to the parietal peritoneum. Alluding to the fact that typhlitis was very apt to recur, he advocated operating after the second attack, and removing the appendix, which was the cause of the trouble. He mentioned such a case in which after the third attack he had operated, and found the appendix twisted in consequence of the non-development of its mesentery, and acutely distended with mucus. Since the operation there had been no recurrence of the malady, and the patient might be looked upon as cured.

DR. WEIR, of New York, said that, according to some statistics which he had collected of a hundred patients operated on after the eighth day, seventeen per cent. had died, whereas of those operated on before that date, only eight per cent. had succumbed. He looked askance at the catarrhal theory, and, indeed, at the stercoral inflammation. He thought the practice of giving purgatives and enemata was all wrong, seeing that the trouble was due, in the majority of cases, to perforation of the appendix. Perforation of the cæcum was rare, occurring only three times in 300 cases. Last year he had collected notes of a hundred necropsies of typhlitis, and in only six cases was the cæcum filled with feces. He quoted some statistics, according to which the mortality was forty per cent. under the old method of treatment, and only sixteen per cent. since purgation had been abandoned. Reverting to the necropsies, he said that in twenty-two cases the abscess was localized, and in thirty-two cases there was abscess *plus* peritonitis, while in fifteen cases there was general suppurative peritonitis. In only four cases was there any extra-peritoneal disease. About fifteen abscesses out of sixty-seven burst into the peritoneal cavity. The needle was a good means of arriving at a diagnosis provided one fell upon the pus, but the not finding pus was no proof that pus was not present. In some cases in which general suppurative peritonitis was suspected, no tumor could be felt, and in such cases he thought it was advisable to operate.

MR. KNOWSLEY THORNTON said that no surgeon of the present day would hesitate to operate when pus had been recognized to be present. With reference to washing out in these cases, he said that he never found it necessary to do this, and he thought that good drainage was all that was required. He alluded to the troublesome sinuses which were apt to form, the cure of which was often impossible. He mentioned the case of a lad aged seventeen, who had suddenly developed symptoms of typhlitis, for which a purgative and enema were given; a day or two afterward he suddenly became collapsed, and when they operated they found the appendix standing upright, distended, black, and gangrenous, together with the adjacent portions of mesentery. The patient lived for about a week after the operation and then died, probably from an extension of the gangrene along the mesentery. Another case was that of an aged gentleman with symptoms which pointed to typhlitis and a large dull mass on the right side. The question was as to whether this mass was malignant or not. He determined to puncture, which he did with a long, narrow knife. He found at once that he had to do with a solid mass, and desisted from anything further, under the impression that it was a sarcoma. Only a little bloody serum

exuded. Curiously enough, that patient recovered after the puncture and got quite well. He said he had often seen Sir Spencer Wells ligature and cut away the appendix, and he had never seen any ill results follow. Latterly, however, he had taken to bringing the edges together by means of a continuous suture, which, on the whole, was perhaps preferable.

DR. BULL, in reply, observed that he had purposely only dealt with the surgical aspect of the disease. He doubted whether patients could often be persuaded to undergo any operation after an attack had subsided, as suggested by Mr. Treves. He had never met with any accidents in the use of the exploring needle himself. He said that no one would hesitate to wash out fecal matter, and he asked why they should hesitate to wash out pus that smelled as bad as feces, and was as injurious in its effects. He made his incision from the middle of Poupart's ligament vertically upward, and even a little up outward, and he much preferred this to the median incision.—*British Med. Journal*, Nov. 10, 1888.

Creolin, Iodoform Ointment, and Antipyrin in Ophthalmic Practice.—MERGL, in the September number of the *Centralbl. für Augenheilk.*, reports the following as observed at the eye department of the hospital at Pressburg: creolin was used in one per cent solution in acute and chronic catarrhs of the conjunctiva, in trachoma, and in ulcerative conditions of the cornea. In acute catarrhal conjunctivitis a one per cent. solution was applied twice daily to the conjunctiva of the lower lid; in most cases the redness and swelling disappeared in one or two days, and the secretion diminished but did not entirely disappear; it is thus better after two or three days to use one per cent. solutions of sulphate of copper or zinc. Creolin afforded no good results in chronic conjunctivitis. In four cases of trachoma, however, the remedy appeared to act as a specific: the redness and swelling disappeared in two to four days, the purulent secretion in one week, and the granulations in two to three weeks. In other cases, the redness and swelling disappeared, but the granulations would not submit. Finally, exacerbations occurred in some cases. The author, therefore, now begins the treatment of acute trachoma with creolin; if improvement does not proceed, nitrate of silver and sulphate of copper are used. In trachoma with pains or corneal ulcers, creolin is an excellent remedy: the ulcers clear up and the pannus recedes; in combination with atropine, it causes the ulcers to heal. Although creolin frequently cures corneal ulcers, it sometimes fails. On the other hand, the ten per cent. iodoform-vaseline ointment used by KAUKA is of incalculable value, particularly when abscesses have formed in the cornea and chambers. A gauze pad, covered with the ointment, is laid over the closed eyes and fastend with a pressure bandage. Pain is diminished, the ulcers clear up, and the abscesses disappear in two to three days. Upon the recommendation of ALDOR, antipyrin has been used to clear up corneal opacities. As the introduction of the powder is painful, cocaine is first instilled and then the cornea is dusted with antipyrin. After the flow of tears has ceased, which occurs in a few minutes, the cornea is rubbed through the upper lid. The results have been good. In the case of a child, having extensive opacities of both corneæ following smallpox, this procedure was adopted. After three months the child, formerly able to see nothing, could walk alone and recognize small objects, such as a watch and coins. Similar results were obtained in two other cases.—*Wiener medizin. Presse*, No. 41, 1888.

Splenectomy.—The operation of removing the spleen was performed recently by Surgeon W. K. Hatch, at the Sir J. J. Hospital, Bombay. The patient was put under chloroform, and Dr. Hatch, with the assistance of Drs. Banks, Manser, Dimmock, and Galleghar, removed the spleen successfully. Collapse followed, and it was deemed necessary to perform transfusion of blood. A Parsi student, Mr. Hirji J. Dady Sett, of Grant College, volunteered to give his blood in order to save the life of the patient, and several deep incisions were made on Mr. Dady Sett's right hand. But Mr. Dady Sett fainted, transfusion was not carried out, and Bhaiaji died within twenty minutes after the operation. This operation is the second of its kind in Bombay. The first was performed by Dr. Blanc, some ten years ago, and it, too, proved unsuccessful.—*Indian Medical Gazette*, September, 1888.

Cannabin in Basedow's Disease.—VALEIRI, of Naples, has used cannabin in three cases of exophthalmic goitre with good results, after other measures had failed.

℞.—Cannabin . . . . . gr. ivss.
Sacch. lactis . . . q.s. ut ft. pil. No. v.
S.—To be taken during twenty-four hours.

Or,

℞.—Cannabin . . . . gr. ivss.
Aquæ destil. . . . . ℥iij.
Syrup aurantii floris . . ℥j.—M.
S.—To be taken in teaspoonful doses during twenty-four hours.

A decoction of two to four parts to the one hundred, or doses of fifteen to thirty minims of the tincture may be given.—*Wiener medizin. Presse*, No. 41, 1888.

Acetic Acid as an Antiseptic.—In 3-5 per cent. solutions, acetic acid has given favorable results as an antiseptic in gynecological practice. It has several advantages, in that it is not poisonous, like carbolic acid, it is hæmostatic, and becomes absorbed readily. It does not injure instruments like the bichloride of mercury.—*Journal de Médecine de Paris*, October, 1888.

Internal Administration of Creolin.—HELLER (*Deutsche medicin. Wochenschr.*, No. 47) holds that for the thorough disinfection of the cavity of an empyema creolin (1 to 5 : 1000) in lukewarm water is to be preferred to other remedies, on account of its non-toxic and unirritant action in connection with a powerful antiseptic influence; also in putrid bronchitis, in a strength of 1 to 500. In these cases it acts admirably, while in simple, non-putrid catarrh of the bladder, ordinary measures will suffice. In disorders of the stomach and intestines the author thinks that creolin will not be superseded by another remedy. Its antizymotic action in the various fermentative and putrefactive processes in the stomach and intestines is most conspicuous. Its non-toxic quality prevents any anxiety as to an overdose. It is given for meteorism, in typhlitis, for catarrh of the small intestine, for habitual atony of the intestine with constipation

and especially in typhoid fever—it being hoped in the last that the removal of the meteorism will prevent threatened perforation. The remedy has, further, been useful in the flatulency accompanying acute and chronic intestinal catarrh, in dilatation of the stomach, combined with lavage, to overcome the development of gas, in acute and chronic diarrhœa with liquid evacuations. Four to fifteen grains are given three times daily one hour after meals. On account of its disagreeable tarry taste, the remedy is given in gelatin capsules. No unpleasant complications have been noticed even from large doses. In a case of tænia solium, and in one of oxyuris vermicularis its antiparasitic action was manifested.—*Correspond. Bl. f. Schweiz. Aerzte*, November 1, 1888.

Cancer by Skin Grafts.—The *Centrlblt. f. Chirurgie*, 1888, p. 726, mentions the following case, in which carcinomatous nodules were transplanted from one breast to the other by means of skin, and which possesses considerable interest both pathologically and therapeutically. Having determined that a case in which the breast had been previously removed for cancer was too far advanced to permit of a second operation, HAHN obtained the patient's leave to ascertain if it was possible to inoculate the skin over the second breast by pieces derived from the affected skin over the first. Numerous small cancerous nodules were, on April 9th, cut off as evenly as possible with grafting scissors, and transplanted by Reverdin's method on the sound breast, after skin on the selected spot had been removed so as to leave an ulcer for their reception. On May 1st the transplanted pieces had taken firm root, and the ulcer was completely covered with epidermis. On May 19th at the edge of the pieces of skin some small projecting nodules appeared about the size of a millet seed; they gradually increased in dimensions, and by June 26th had reached the size of a cherry-stone. Four days later the patient died. On microscopic examination of sections of the transplanted skin, all of which gave a characteristic appearance, it was evident that the main mass of the tumors consisted of a well-developed connective-tissue stroma, containing irregular masses of epithelial cells inclosed in it. These masses had clearly insinuated themselves into the healthy tissues, which were on all sides beginning to be invaded by the epithelial nests. The above related facts seem to prove clearly that carcinoma can under suitable conditions be inoculated upon healthy tissues; and the practical deduction to be drawn from this circumstance is that great care should be exercised during an operation to avoid taking up pieces of cancerous tissue in the forceps and leaving them adherent to the edges of the wound, where they may afterward find a permanent resting-place.—*The Practitioner*, November, 1888.

Prevention of Diseases of the Joints.—In the following *résumé*, DR. LEROY HUBBARD gives his opinion as to the best method of preventing joint diseases in children:

A careful inquiry by the surgeon into the hereditary history of each family which he may have charge of; and if a well-marked history of hereditary disease, especially tuberculosis, is found, a warning should be given to the parents of the dangers to which the children are exposed.

Instruction in regard to hygiene, diet, etc., with the endeavor to keep the nutrition of the children up to the highest point until they have passed the period at which they are most liable to contract a joint lesion, viz., the period of puberty.

When tuberculosis is present in a family, either as phthisis pulmonalis, or a joint lesion with an abscess, all sputa or discharges should be destroyed or disinfected; and healthy children should be brought as little as possible in contact with the sick. In this way the risk of direct contagion may be reduced to a minimum.

Instruction should be given in regard to the importance of any traumatism of a joint or the parts near it, however slight it may be. After such an injury, absolute rest of the joint should be insisted upon until all evidence of inflammation has subsided and the function of the part is perfectly restored.

The prohibition of all sports or exercise which bring repeated traumatism upon one joint. Young children should not be allowed to go up and down stairs frequently.

After one of the acute exanthematous fevers, a considerable period should elapse before active exercise, such as running, jumping, or long walks is allowed.—*Med. Record*, Nov. 10, 1888.

Salicylate of Mercury in Syphilis.—This new drug, an amorphous, white powder, without taste or odor, is obtained by precipitation, when an alcoholic solution of salicylate of potassium is added to an aqueous solution of nitrate of mercury. Szadek has used it extensively in gonorrhœa, and, while he finds it has marked antiseptic properties, he thinks it does not materially shorten the course of the malady. His formula is:

℞.—Salicylate of mercury . . . gr. ij.
Sodii bicarb. . . . . gr. xv.
Aquæ . . . . . ℥viij.—M.
For injections.

In primary and secondary syphilis he combines it with subnitrate of bismuth in the form of ointment and applies to the chancre. Internally he gives it in minute doses. In twelve cases he administered it subcutaneously, mixed with gum arabic and distilled water. He concludes that it is as good as any of the preparations now in use, and does not cause local irritation or septicæmic poisoning.—*Journal de Médecine de Paris*, October, 1888.

Ingluvin for Hyperemesis Gravidarum.—As a result of personal experience, DR. JULIUS PAPP recommends ingluvin for the hyperemesis of pregnancy. In No. 40 of the *Pest. med. Chir. Presse*, he reports the following case: A thirty-two year old primipara, early in her pregnancy, vomited fifteen to twenty times daily, so that she could retain nothing on her stomach. All the usual remedies were tried, but they failed. Subnitrate of bismuth with powdered opium afforded temporary relief. The temperature rose and diarrhœa set in, so that the patient was unable to sit up in bed. The induction of abortion was thought of as a last resort. In the meantime ingluvin was proposed. Seven and a half grains were given morning, noon, and evening, a half hour before meals, with two tablespoonfuls of a one per cent. solution of hydrochloric acid after meals. The vomiting improved after the first dose. The remedy was continued for three

weeks. Ingluvin was also used in dyspeptic conditions and proved superior to pepsin.—*Wiener medizin Presse*, No. 42, 1888.

Baked Water.—M. TELLIER finds that boiling water is not destructive to certain microbes. Boiling also deprives it of many of its salts, and gives it an insipid taste. Hence, he recommends that it be baked at a temperature of 302° F. The salts are not dissipated by this method, the water is palatable and entirely free from microbes. He places the solution in a closed metallic jar, which in turn is placed in a bath of water saturated with salt, and heat applied. At the bottom of the metallic jar is an opening with a plug, by removal of which the pure water can be drawn off, and any organic matter retained in a fine filter guarding the outlet.—*Lyon Médicale.*

Injection in Hemorrhoids.—DR. J. EARL DENNIS, of Falun, Kansas (Lauphear's Kansas City *Medical Index*), gives the following prescription for injection in hemorrhoids:

℞.—Olei olivæ . . . . . ℥ij.
Olei ergotæ . . . . . ℥ij.
Sulph. cocaine (five per cent.) . ℥ij.
Acidi carbolici (pure) . . . ℥iss.—M.

The ingredients should be added in the order named, observing to dissolve the acid (by setting the container in a bucket of very warm water) before adding it to the others. From three to ten drops should be injected into the centre of the pile tumor.

Rosenberg on the Treatment of Laryngeal Phthisis.—In the *Therapeutische Monatshefte*, Hefte 7 und 8, 1888, Dr. Albert Rosenberg returns to the important subject of laryngeal treatment by menthol. He first relates briefly a case of spontaneous recovery from this disease which was under the care of Prof. Fränkel. The ulceration which was situated on the false vocal cords healed with the formation of a membranous band, extending across from the lower surfaces of the ventricular bands and leaving only a round opening of the size of a penholder (*sic*) through which respiration took place. There were no signs of syphilis, and bacilli were found in the sputum.

After reverting to the various local applications recommended in laryngeal phthisis, the author gives a table showing all the cases treated with menthol at the Berlin University Polyclinic, from June 1, 1885, to February 1, 1888. Of the fifty-seven cases enumerated only about twenty were available, chiefly from the patients attending irregularly and staying away after having been seen only a few times. All of these twenty, however, improved under treatment. In nine, actual recovery took place—*i. e.*, the infiltrations disappeared, the ulcerations cicatrized, and existing subjective troubles vanished. In all the cases included in the table the diagnosis was confirmed by the presence of bacilli. The most rapid in healing are the ulcerations, but of these the most obstinate are those on the posterior laryngeal wall. Infiltrations are more resistant, but they often diminish gradually. Commencing perichondritis on the arytenoid cartilages often disappears entirely. The duration of the treatment is from four weeks to four months.

A comparative test of the action of menthol and of lactic acid was made in a case of tubercular ulceration of the velum palati, one-half of the palate being painted with either drug. The menthol side healed more rapidly, and was much less painful than where lactic acid was applied.

In regard to the important question of recurrence, Dr. Rosenberg reports on the present condition of some of the patients mentioned in his previous communication. In one case, in which the patient ran to excess *in baccho et venere*, there has been recurrence; in eight others the ulcers have remained healed, five since March, May, or June, 1886, and three for the period of one year. One patient, who came with extensive laryngeal ulceration and advanced disease of the lungs, died after about six weeks' treatment. The preparation shows, on the posterior wall, an ulcer the size of a bean completely cicatrized, in addition to another unhealed, to which from its direction, the menthol could not be so well applied. With these exceptions, all the patients he has had an opportunity of watching, have remained healthy.

In phthisis pulmonalis he recommends tracheal injections of a ten per cent. solution of menthol in olive oil, combined with frequent inhalation of the drug, by means of a special inhaler, which vaporizes the menthol and allows it to be inhaled at a temperature between 113° and 122° F. He cautions against the use of any but Asiatic menthol, and considers that this drug is as efficacious as lactic acid, while at the same time it is more easily applied.—*London Medical Recorder*, October 20, 1888.

Treatment of Eclampsic and Uræmic Convulsions in Children.—JULES SIMON, in *Gaz. méd. de Paris*, 1888, No. 9, p. 99, claims that in the eclampsia of children special attention should be paid to the secretion of urine. As long as the illness lasts the amount of urine will be found to be small; should it, however, increase, we may look for an early recovery. Should the urine increase, but the convulsions not subside, it must not be taken for an unfavorable symptom, as they will, nevertheless, soon disappear. From a prophylactic point of view the dyspepsia of children is of the utmost importance. To prevent all excitement they should be isolated. Should digestive disturbances be due to an eclampsic attack, a rectal injection of glycerine and water should be administered, or the stomach emptied by vomiting, which may be induced by tickling the throat, or, if the child be unconscious, by administering small doses of ipecac. Should the attacks still persist, chloroform or ether inhalations, chloral or mustard baths are indicated. As soon as the attacks subside, and the young patient is able to swallow, bromide of potassium should be administered. Should the paroxysms show signs of exhausting the little patient, a large blister to the nape of the neck may be applied, and allowed to remain until pus has formed. If the attacks are due to uræmia, venesection is indicated (for very small children, leeches may be applied to the mastoid process; should they have reached the age of five or six, cupping must be resorted to in the region of the kidneys); prolonged diaphoresis is also of service.—*Centralbl. für klinische Medicin*, Oct. 1, 1888.

Application for Burns.—As an application for burns, the *Centralbl. für Thérap.* suggests the following:

℞.—Ol. olivæ . . . . . 6 parts.
Salol . . . . . 1 part.
Aquæ calcis . . . . . 6 parts.—M.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, NOVEMBER 24, 1888.

CALOMEL AS A DIURETIC.

ABOUT two years ago JENDRÁSSIK called attention to the value of calomel as a diuretic in the dropsy of heart disease, and the observations which have gradually accumulated show that his conclusions as to the efficacy of this drug were well founded.

Two interesting papers upon the subject appear in the *Deutsches Archiv für klinische Medicin*, Bd. xliii. Heft. 2 and 3. Stintzing, from Ziemssen's Clinic, reports a number of cases showing the effects of calomel in cardiac and in other forms of dropsy. In normal individuals the diuretic action appears to be very slight. In eighteen cases of dropsy associated with various forms of heart disease effective results were obtained in almost every instance, the urine increasing, within a few days, threefold or four-fold in quantity. Thus, in case 13, dilatation of the heart with high grade of anasarca, the urine, which on the fifth day was 650 c.cm., rose on the eighth day, after three days' action of calomel, to 5000 c.cm. In other cases the effects were quite as striking; in many instances the calomel acted on the bowels, producing copious watery discharges. It seemed also to benefit the general condition, as under its use the appetite improved and the patient slept better. In serous exudations, pleurisy and pericarditis, the drug did not appear to have any special influence. Increase of urine is usually noticed from the second to the fourth day. The polyuria continues for, at least, three days, usually for four or five; seldom for so many as ten days. The largest daily quantity in this series was somewhat over 8000 c. cm.

In the same number of this journal, BIEGANSKI reports equally good results in cardiac dropsy. The diuresis occurred, as a rule, two or three days after the administration. His statements are practically in accord with the observations of Stintzing and Jendrássik.

It is usually administered in small doses (0.2 gm.) three times a day. If the diarrhœa is profuse, it may be combined with opium in the form of Dover's powder.

Bieganski found the diuretic action most marked after subcutaneous administration. The action after inunction seemed very slight. The small doses do not appear to be effective; the action is much more marked in medium sized and larger doses. Salivation, stomatitis, diarrhœa and colic are occasional untoward effects.

Bieganski believes that the diuretic action of mercury depends on the direct stimulation of the renal tissue. Jendrássik and Stintzing hold that the drug favors the absorption of the transudate from the tissues.

Calomel cannot be substituted for digitalis in cases of cardiac failure; but when given with it, we certainly see the most beneficial results. The good effect of Niemeyer's pill, so much used in this country in cases of cardiac and hepatic dropsy, may be attributed to this combination.

BOARD OF HEALTH RELATIONS TO TYPHOID FEVER.

FOR a few years typhoid fever has, in Brooklyn, been managed sanitarily as one of the contagious diseases. The Board of Health has construed the rules to require a quarantine of the patient, an exclusion of children from school, and private and prompt funerals in the cases of death by fever. The Kings County Medical Society, after a full discussion, passed a nearly unanimous vote declaring these restrictions to be onerous and unnecessary, and recommending the Board to modify the rules. This has recently been done, and the medical profession of Brooklyn have been notified by circular, under date of November 1st, that the rule requiring the quarantine of typhoid cases will not be enforced. The rules that require the reporting of cases by physicians remain in force in order that the fever-records of the city may be continuously kept, and

that the drainage inspection of infected localities may be facilitated. According to the present views of sanitarians, these two points of oversight, last mentioned, appear to embrace all the official duties of our boards of health in respect of fever; if we except one other point of an advisory nature, which may with profit be added, namely, the promotion of a true and thorough disinfection of the excreta of the fever-sick, and, further, in the case of families of the less-favored class, all of whose means are needed for the purchase of proper diet and medicine, the supplying of potent disinfectants at the public cost. In not a few cities, having a competent health organization, this distribution of disinfectants is in constant practice in connection with the management of the infectious diseases.

THE profession has been shocked by the intelligence of the sudden death, last Sunday afternoon, of Dr. Henry B. Sands. He had left his home only a few hours before in his usual health and cheerful spirits. Although he had not yet entered upon his sixtieth year, Dr. Sands had achieved a position in the front rank as a surgeon and teacher. Conservative and cautious in his methods, though he was, there were few operations in the field of surgery which were not familiar to him. It will be remembered that he was one of the consultants in the case of General Grant, and in that of ex-Senator Conkling it was he who performed the operation which was to give the eminent patient his last chance for life.

The death of Dr. Sands will be seriously felt in the surgical circles of New York, where, as the trusted consultant and wise teacher, he occupied a position that is not readily filled. A sketch of his career will be found n another column.

DR. J. WILLISTON WRIGHT has resigned the Chair of Surgery in the University of the City of New York, and we learn that Dr. Lewis A. Stimson will succeed him.

THE Southern Surgical and Gynecological Association will hold its annual meeting at Birmingham, Alabama, on December 4th, 5th, and 6th, under the Presidency of Dr. W. D. Haggard, of Nashville, Tennessee.

THE Pasteur Institute was opened at Paris on November 14th, by President Carnot in the presence of numerous high officials and eminent visitors. Pasteur received a popular ovation when he advanced to deliver his address. He spoke chiefly of his indebtedness to those who had aided him in the organization of the Institute.

DR. T. GAILLARD THOMAS has resigned his position as surgeon to the Woman's Hospital in the State of New York, and it is stated that the Medical Board has requested the Board of Governors not to fill the vacancy for the present.

THE first of a series of lectures on bacteriology by Dr. G. M. Sternberg was delivered at the Hoagland Laboratory, Brooklyn, last Saturday.

DR. GAMALÉIA has gone from Odessa to Paris, to demonstrate to the Académie des Sciences his method of preventive cholera inoculation. It is his purpose to visit India in March to prove the efficacy of his method on man.

AN International Congress for Criminal Anthropology will be held in Paris from August 4 to 8, 1889. Prof. Brouardel will be honorary president.

THE French War Department proposes to furnish its officers and soldiers with a belt containing a linen bandage ten feet long, two antiseptic compresses, and a safety-pin.

WE are happy to learn that the statement which appeared in our issue of last week in reference to the prevalence of typhoid fever in Montreal is incorrect, and that there does not exist there this autumn any unusual amount of typhoid, and much less than at the corresponding period of last year.

DARTMOUTH MEDICAL COLLEGE, last Tuesday, conferred the degree of M.D. on twenty-six graduates.

SOCIETY PROCEEDINGS.

PHILADELPHIA ACADEMY OF SURGERY.

Stated Meeting, November 5, 1888.

THE PRESIDENT, D. HAYES AGNEW, M.D., IN THE CHAIR.

DR. C. B. NANCREDE reported

TWO SUCCESSFUL CASES OF BRAIN SURGERY.

(See page 584.)

DR. W. W. KEEN said that there are several points to which he should like to refer. In the first place, in regard to the history of this case. He was present at the operation of Dr. Steinbach. The button of bone accidentally escaped attention and lay on the chest of the patient for

perhaps twenty minutes before it was placed in the antiseptic solution. The bone was also an unfavorable specimen, in that it was so thick. There was very little diploë, and the circulation was, therefore, probably defective. He understood that the man had hemorrhage from the scalp the night after the operation, requiring reopening of the wound. It is remarkable that the man had no trouble with this piece of bone until ten weeks afterward. The operation was done by Dr. Steinbach May 7, 1888, and the patient was admitted in the latter part of July to St. Agnes's Hospital, complaining of headache, and with a small fistulous opening at the seat of operation with a considerable discharge of pus. This, he stated, had appeared only a week before from the rupture of a small abscess. The probe disclosed dead bone. All that he did was to reopen the wound and remove the bone, which he found white and bare lying in a bed of granulations. At Dr. Steinbach's operation the dura was not opened. He removed the piece of bone which was loose, provided for drainage, and the man recovered in a few days.

Another point to be noted is, that after each of these operations the patient has had no attacks for a long while. And this emphasizes the statement of Dr. Nancrede, that at the present time we can form no conclusion with reference to the ultimate result. We know that excision of a scar, or any other surgical procedure in cases of epilepsy, will frequently arrest the attacks for quite a long period. It is, therefore, desirable that we should, if possible, have reports of these cases one, two, three, or four years after the operation.

The necessity for the careful study of the convulsive attacks which was made by Dr. Nancrede, was emphasized by a case at present under his care. A young girl was brought to him not long since by Dr. Mills. The statement of her mother was, that she had had a large number of attacks, all, with the exception of four, beginning in the ring and little fingers of the right hand. This was followed by flexion of the wrist, the elbow, and finally of the shoulder, and by that time the attack became general. He placed the girl under careful observation in St. Mary's Hospital. She has had three attacks in addition to one which was distinctly hysterical. Only one of the attacks corresponded, and that only partially, to the description given by the mother. On Saturday she had one in which the hand was exactly in the position of the hand used to indicate in printing, with the forefinger extended, and the other fingers flexed. He could not think but that at the present time in our anxiety to relieve these cases we are in danger of hastily reaching conclusions based on the reports of relatives, rather than upon the observation of those not related to the patient, and whose sympathies are not involved, and who are trained observers. He should, therefore, not think it proper to operate in a case of epilepsy until the patient had been observed in a number of attacks by a trained observer. He had three other cases now under observation for the same purpose. This is a point that cannot be too strongly insisted upon. If we do ill-judged operations upon the brain, we are going to bring cerebral surgery into disrepute, and shall have a series of failures, in which more or less marked paralysis or paresis is present, and where injury, instead of benefit, will be the result.

He understood Dr. Nancrede to state that electrization of the white matter underlying the thumb centre produced only very slight movement of the thumb. In the third case that he reported at Washington, in which he excised the centre for the wrist, it was absolutely different. In that case irritation of the cortex produced extension of the wrist, and when this cortical centre was removed, the application of the poles to the underlying corona radiata was followed by the same movements.

He was not at all certain that Dr. Nancrede is right in supposing that strong currents may do injury to the brain. This is a matter to be borne in mind, and investigated with care. He was surprised at the strength of current required in his case. A current that would move the muscles of his hand had no effect when applied to the cortex. This gives rise to the query whether or not, in case the centre cannot be at once removed, it could not be marked in some way, so that having been once found, it will not be necessary again to apply the current. The point might be fixed with the aniline pencil, or by a nick in that part of the brain. This would do no harm, as it would be in a region which we intend to excise.

DR. MORRIS J. LEWIS said he was astonished at the strength of the faradic current required in Dr. Nancrede's case. No effect was produced by the application to the cortex until the current was so strong as to produce powerful and painful tetany of his first dorsal interosseus muscles, the skin being wet and the metal electrodes placed upon it. The battery was one of Flemming's largest faradic batteries, in perfect order, one-half of the secondary coil being used, with the graduating tube half withdrawn. There was an almost complete failure to obtain a reaction from application of the current to the white matter, this being possibly due to the fact that it was difficult to find the exact spot on the cortex, as a displacement of the electrodes of one-sixteenth of an inch caused the movement to cease. He was uncertain whether the convulsion which came on during the operation was due to the application of the current or simply happened to come on at that time. He thought, in future, that it would not be well to apply such strong currents any more than is absolutely necessary to localize the spot to be excised.

DR. JOHN B. ROBERTS desired at this time to report a similar case operated on about six weeks ago. The patient was a child two and a half years of age, referred to him by Dr. Mills, with the history of having been struck on the head early in infancy with a heavy clock. No scar was found. There was no evidence of injury of the scalp and no indentation of the skull. The child had the appearance of one with limited intelligence, but its youth made it impossible to determine how much brain capacity there was. The spasm, which occurred frequently during the day, was located in the left shoulder, the left upper arm, and head. After a good deal of discussion, it was decided to be a proper case for exploratory trephining, with excision of the centre or not, as would appear advisable. Drs. Keen, Mills, Nancrede, and some others were present. There was no difficulty in restraining hemorrhage from the scalp by the use of Esmarch's flat band. He applied the trephine about one and a half inches in front of the Rolandic line and a little to the right of the median line. He first used a two inch trephine and subsequently a one and a half inch trephine, the one cut slightly overlapping the other, and then removed on one side the little spur by means of the gnaw-

ing forceps. Immediately under the bone there was some adhesion of the dura. Opening the dura, the pia was found so œdematous that it could be pitted by pressure, like the leg of a man with dropsy from Bright's disease. Between the pia and the dura there was a thin membrane supposed to be a false membrane, possibly the result of inflammatory action, or from an old hemorrhage.

The poles of the battery were applied, but no response was obtained, although the current was made quite strong. The opinion which he expressed at the time was that this was probably due to the large amount of fluid in the pia. When the fluid was drained off by a snip made by the scissors the convolutions became distinct; but there was nothing to indicate the necessity for further operation and the wound was closed. Healing took place perfectly by first intention except at two points. One of these was at the exit of the catgut. A discharge of cerebro-spinal fluid from these openings kept up for two weeks or so. There had been only three convulsive attacks since the operation, when he last saw the patient. They were within the first forty-eight hours after the operation and were slight. What the lesion was and what he accomplished he was unable to say.

There are some points which have occurred to him as the result of this and other operations. The first is with reference to the trephine. We are all in the habit of using the trephine with the conical crown. This is objectionable since we have learned that it is desirable to preserve the disks of bone. With the conical trephine, especially in a thick skull, the groove formed between the edge of the disk and the rest of the skull is very wide. He saw no reason why we could not use a thinner trephine. The objection made to this suggestion by an instrument-maker was that this would cause slits between the teeth and weaken the instrument. He thought, however, that if the trephine is kept sharp, it does not require much force to cut through the skull, and such weakening would not be objectionable.

The centre-pin of the trephine is difficult to clean. This has led him to suggest that in place of the centre-pin we insert into the trephine a close-fitting solid block, with a short centre-pin projecting from its lower face. After the groove was sufficiently deep the plug could be dropped out. He thought that Dr. W. B. Hopkins once suggested something of this kind, his object being not cleanliness, but the prevention of the perforation of the dura with the projecting pin. In his next operation he proposes to leave the periosteum on the disk so as to give him something by which he can stitch the disk in position. He found considerable advantage in allowing one of the spurs separating the two openings to remain, as it gave more stability to the reinserted disks of bone.

DR. WILLIAM HUNT asked whether the replacement of the button of the bone is not an unnecessary refinement not adding to the success of the operation if it succeeds, but accompanied with risk of the failure of the whole object of the operation by necrosing and thus requiring reopening of the wound? Does anyone know of any accident or untoward event following leaving out of the piece of bone in ordinary trephining? He could conceive of cases, especially in the class we are considering, in which leaving out the disk of bone would be of advantage by relieving pressure. Ambrose Paré tells us, in referring to the silver plate quacks, that the brain will not tolerate so much as a hair, in the shape of a foreign body, and what else is even a small particle of necrosed bone?

DR. W. W. KEEN had the pleasure of seeing Dr. Roberts's operation. The false membrane of which he spoke was very distinct. He had seen quite a number of operations upon the brain besides those which he had performed himself, and had freequently seen the œdematous condition of the pia to which reference had been made. He was at first disposed to regard it as a normal condition, but he now considers that this is really an abnormal condition of the cerebral membranes. The relief which is obtained by getting rid of this œdematous condition, is possibly one of the means of effecting good. This is rather curious, if it be a fact, for von Bergmann has made a point that in operations upon the brain, especially where large portions of the skull are removed, the consequent œdema is one of the barriers to such operation, especially in the removal of large tumors.

He agreed with Dr. Roberts that the little spurs of bone should be saved where it is possible to do so. He did not recall in his own experience any case that would enable him to answer the question of Dr. Hunt, but he thought that the skull would serve its purpose better if it could be reproduced in its entirety rather than by allowing it to remain with a large aperture. He saw that day a case in which, from the explosion of an emery wheel two years ago, a large portion of the frontal bone was removed. The patient is now suffering with epilepsy If due care be exercised, he thought that there will be no trouble from replacing the bone. He thought that the case of a central block instead of the pin, may be an admirable device. There is great difficulty keeping the centre-pin and the inside of the trephine clean. There is also a great deal of difficulty with the set screw. The use of a little shoulder above the point of the pin he adopted in a new centre-pin which he recently had made. Some time ago he consulted an instrument-maker with reference to this large waste of bone caused by the conical trephine. While the adoption of the suggestion of Dr. Roberts might not weaken the instrument too much, yet in the larger sized instruments there would be danger of breaking. The method which Mr. Horsley has recently adopted seems to have some advantages. He now removes a button an inch in diameter, which gives him the thickness of the skull. Then with a Bonwill engine he makes his incision not going quite through the bone. He next with bone pliers readily divides the remainder of the bone. This method saves time and the groove cut in the bone is very narrow. In one case on which he (Dr. Keen) operated last spring, he removed the membranes, but he replaced the button of bone and attached it to the scalp; he completed the centre-pin indentation into a perforation and made a second opening near the edge of the button of bone. By means of a ligature passed through the button and the scalp and tied on the outside of the scalp, he obtained complete union.

DR. JOHN B. ROBERTS said that some time ago he made a number of experiments with the flat burr of Bonwill's engine. He made openings of various sizes and shapes. This will cut as long as it is in contact with bone, but it will not injure the dura mater.

DR. NANCREDE said that it is in the highest degree probable that the membrane found in Dr. Roberts's case was due to the extravasation of blood. The blood pig-

ment, etc., become absorbed, vessels form, and in the course of time the appearance described by Dr. Roberts will be presented. He saw no advantage in leaving the periosteum except for suturing purposes. The periosteum depends for its osteogenetic power on cells identical with those lining the Haversian canals, which are continuous with the medulla. He did see an advantage in leaving the periosteum upon the flap, as its inner layer probably contains some osteoblasts which may be sufficient to carry on the nutrition of the bone beneath. He thought that in many cases there is a manifest advantage in putting back the pieces of bone, perhaps not so much in epilepsy as in trephining for other conditions. If we can secure equable pressure, such as will be obtained from a large piece of bone, the risks of hernia-cerebri are lessened.

The objection to Hopkins's plug for the trephine, so far as antisepsis is concerned, is that it contains a spring difficult to clean; it also makes the instrument unnecessarily heavy.

THE GYNECOLOGICAL SOCIETY OF CHICAGO.

Stated Meeting, September 28, 1888.

THE PRESIDENT, HENRY T. BYFORD, M.D., IN THE CHAIR.

DR. HENRY P. NEWMAN read a paper entitled

ALEXANDER'S OPERATION, WITH REPORT OF CASES.

His object in presenting a necessarily brief report of seven recent cases of Alexander's operation was: first, to invite the consideration of the Society to the operation of shortening the round ligaments for uterine displacements; and secondly, to refer briefly to the manner of operating, suggesting some modifications in the *technique* which have been applied in five consecutive cases.

The operation was given to the profession more than six years ago by Wm. Alexander, of Liverpool. Since then it has been performed upward of three hundred times, as reported by different operators, with very satisfactory results. Notwithstanding these promising reports, and all that has been said and written by those who are familiar with the operation, and convinced of its utility, there has been much adverse criticism from high authorities in gynecological literature. To this criticism must be attributed largely the tardiness with which the operation has been received and recognized as a therapeutic measure.

It was early objected that the operation was unscientific, upon the grounds that it was not the round ligaments, but chiefly the sacro-uterine ligaments, which were at fault. To this, Dr. Henry T. Byford, in a lecture on the operative treatment of retroversions, very aptly replied: "This objection is rendered untenable by the fact that when we draw the fundus forward, we restore the normal direction of the uterine axis with reference to abdominal pressure, although the whole uterus may be a trifle forward of its natural location; and by the fact that, after the os is rotated backward, the sacro-uterine ligaments tend to retract, and regain their supporting function."

The later objections have been:[1] "(*a*) to the difficulty of finding the round ligaments; (*b*) the possibility of breaking them; (*c*) their absence; (*d*) the insufficiency of their retentive action; (*e*) the complication of the wound, and the danger of peritonitis as a result of opening Nuck's canal; (*f*) the violent pains to which the patient is subjected after the operation; (*g*) the insufficiency of the operation as regards the prolapsus and the surrounding parts, etc." Of which objections, Dr. Doléris avers, from large experience in operating, that they have no important value, and further adds: "I was almost an opponent of the procedure of shortening, in my first studies as to its value. Practice and experience have modified my ideas. Nearly all surgeons have followed the same path. Hesitating at the beginning, they have ended by recognizing the exaggeration of their first objections. Therefore, for my part, I say there is neither serious difficulty of execution, nor are there grave results following the operation. Antiseptic precautions insure operative success. A good diagnosis and a good operative plan will insure therapeutic success."

The clinical evidence thus far obtained is even more decidedly in support of the utility of the operation. Dr. Alexander himself, in his brilliant report of eighty cases in hospital and private practice, has demonstrated the fact that the anatomical cure of retroflexions and retroversions by shortening the round ligaments is a most certain result of the operation; and in cases of prolapsus, when he operated upon the perineum at the same time, he was equally successful with what he termed the "double operation."

The unpublished cases of Dr. Byford, and those reported by Dr. J. H. Kellogg, of Michigan,[1] are confirmatory of the success of the procedure in the hands of American operators. Dr. Kellogg favors the operation in cases of anteflexion combined with retroversion, especially when accompanied by prolapse of the ovaries; also in carefully selected cases of anteversion. He further speaks of the benefit derived in ovarian prolapse, where the ovaries are not held down by adhesions. Of twenty-two cases in which he has operated, twenty presented prolapsed and tender ovaries, with one or both enlarged, and in every instance he reports the prolapsed organs restored to their normal position, and, with two exceptions, they have remained there.

Dr. Wm. L. Reid, of Glasgow,[2] in a paper read before the Gynecological Section of the International Congress, takes what he intends to be an impartial view of the remote results of the operation, and gives some opinions, *pro* and *con*, which he has obtained by correspondence with a few prominent colleagues in England and Scotland. While the weight of these opinions is mainly hostile, it should be borne in mind that it comes from those who have had little or no personal experience with the operation, and consequently must be based largely upon theoretical grounds.

Notwithstanding these adverse views, Dr. Reid's summary of his own cases, though few in number—eight reported—afford valuable testimony to the efficacy of the operation; and even where accidents or partial failures have occurred, the causes are obvious, and modes of prevention present themselves to one who studies them in detail. He classes them as follows: "From a thera-

[1] Doléris, Trans. Am. Gyn. Society, vol. xii. p. 499.

[1] Transactions of International Cong., vol. ii. p. 764.

[2] Trans. International Med. Cong., vol. ii. p. 757.

peutic standpoint, two completely cured, one nearly so, three considerably improved, one in about the same state as before, and one worse, inasmuch as an inguinal hernia resulted. From an anatomical standpoint, six of the eight completely cured, one very greatly improved, and one bad as before the operation." The latter, however, cannot be justly used as an argument against Alexander's operation. It was an aggravated case of prolapse of third degree, of several years' standing.

Quoting the report: "*The uterus measured five and one-half inches in depth, was very heavy, and cervix was torn up to vaginal roof; perineum was quite gone. No pessary could be worn for more than an hour, except when the patient maintained the horizontal position.*" "The ligaments were shortened and patient *kept in bed a fortnight, getting out of bed for a few hours each day of third week, at the end of which she insisted upon leaving the hospital.*" She was not again seen by the operator for three years, when this note was taken: "Patient wore an ordinary Hodge pessary for three months from date of operation and felt quite well. *At the end of that time, during a severe exertion*, the pessary was expelled, and a week or ten days afterward patient felt the uterus coming down, and also a swelling in the left groin. She was, however, able for work, and a year and a half after the operation was married, becoming pregnant immediately afterward. Was very well and comfortable during her pregnancy and labor, the latter lasting less than half an hour, although the child was large. On getting up nine days after the confinement, the uterus came down as badly as before the operation, but she states that she can go about pretty freely, as she has none of the pains from which she suffered before that time. Micturition and defecation normal. On examination, the uterus was found low down in the pelvic cavity, not retroverted, three and a quarter inches deep, and not tender. In the upright position the cervix comes to the vulva. The scar in the right groin is sound, but in the left the inguinal canal is left open, and when patient stands up, a piece of the bowel comes down at the slightest cough."

This case was quoted thus fully, not only to show the impropriety of using cases of accidental failure against the efficacy of the operation, but also to show that the mistake may be made of expecting more from the round ligaments than even their most ardent advocate has claimed to be their normal function. Like other operations for restoring a displaced uterus, it has a definite field of usefulness, and should no longer be used in a haphazard manner, nor should it be expected to do away with other accessory measures.

Due credit should be given to Dr. Doléris, of Paris, France,[1] for his excellent paper on "Combined Operations for the Relief of Uterine Deviations or Displacements," wherein he classifies the factors which unite in maintaining the pelvic equilibrium, and endeavors to point out the indications for the performance of the Alexander and other accessory operations.

In the author's own cases, he had early been convinced of the advisability of using all auxiliary therapeutic measures, preparatory to shortening the round ligaments, as will be seen in the appended cases. In three of the seven, the cervix and perineum were repaired; in one the cervix alone, in one anterior and posterior colporrhaphy were done, and in one scraping or curetting the uterus for vegetations, and in each instance shortening of the round ligaments was not resorted to, until other feasible methods had been given a fair trial. This manner of procedure seemed to him especially demanded in cases of procidentia, particularly when there is a capacious vagina, a relaxed anterior or posterior vaginal wall, or torn perineum; in other words, where anterior and posterior colporrhaphy and perineorrhaphy are indicated. While he would not say that, in these complicated cases, no benefit could result from Alexander's operation alone, he believed it to be good surgery to fortify it by such auxiliary measures as are known to remedy the tissues at fault, and not to over-estimate the proper function of the round ligaments.

For similar reasons he should favor the treatment of long-standing or aggravated cases of flexions accompanying backward or forward misplacements, by such methods as that devised by Professor A. Reeves Jackson and others, for restoring the integrity of the uterine walls.

His seven cases are of such recent date that he related them, in this connection, merely to illustrate a modified method of operating, which has been, in the main, suggested by Dr. J. Frank, attending surgeon to the St. Elizabeth's Hospital, and its adaptability verified by dissections upon the cadaver.

He begins the operation by cutting directly down upon the internal inguinal ring, using the superficial epigastric vein, and beneath this the ilio-inguinal nerve, as guides, lying as they do directly over the canal of Nuck. The superficial landmarks are the same as are usually followed in this operation, *i. e.*, Poupart's ligament, spine of the pubis, and the anterior, superior spinous process of the ilium. The superficial epigastric vein, as well as the internal ring, is situated midway between the two last-named bony prominences. The primary incision, beginning just above the spine of the pubis, and extending one and a half inches or more, upward and outward, parallel with Poupart's ligament, comes at once upon the vein, which will be found in the subcutaneous fat, near the upper third of the cut. This vein, though often the size of a goose-quill, having no material importance except as a guide, is ligated and cut across, leaving the ligature long, for facility in locating.

On reaching the underlying external oblique aponeurosis, which is easily recognized by its glistening-white appearance, it is cut through in the course of its longitudinal fibres, and corresponding with the superficial incision. The ilio-inguinal nerve is now seen lying along the course of the canal, just beneath or mingling with the lower marginal fibres of the transversalis muscles. It is just beneath the point where the epigastric vein crosses the course of the ilio-inguinal nerve that the round ligament can be readily defined. If the muscular and fibrous tissues surrounding the cord are picked up *en masse* by forceps and slightly pulled upward, and then spread over the thumb or finger, inserted beneath, the whitish, slightly flattened, cord-like ligament is seen. It is now isolated, largely by the fingers, and made to run, care being used not to injure the ilio-inguinal nerve, which should be drawn to one side.

The ligaments should now be pulled upon to their full extent, or until the uterus is drawn upward into an erect

[1] Trans. Amer. Gynecological Society, vol. xii. p. 448.

or somewhat anteverted position, as is determined by an assistant's finger in the vagina, who either holds the uterus in this position by a sound *in utero* or immediately inserts a previously fitted pessary. The ligament is stitched to each side of the canal by a suture of silkworm, or chromic acid catgut, passing the stitch through one pillar of the canal, then into the taut ligament and along its longitudinal fibres, and returning it through the pillar of the same side. The *canal* is then closed by two or three sutures of the same material, made to include a small portion of the cord, but drawn only sufficiently tight to approximate the edges. The loop of the ligament, instead of being excised, is secured by a firm stitch uniting the proximate ends, and then folded into the wound after the method of Dr. Burt, of Boston.

The wound is now closed, the customary drainage tube inserted—supplemented by prepared iodoform-wicking drawn into the depth of the tube for capillary drainage. The ligament of the opposite side—which, after being pulled out and held by a sponge or pledget of gauze inserted beneath, was covered with antiseptic gauze and left—is now treated in the same manner.

Strict antiseptic precautions having been used in all details of the operation, permanent iodoform dressings are applied and the wound exposed only in case of rise in temperature or excessive soiling of the dressings, until the fourth or fifth day, when the drainage tube is removed, and the wicking substituted. Patient is kept in bed about four weeks, great caution insisted upon in getting up, and for four or five months following, no severe exertion is allowed. The pessary is retained during this period, and an elastic abdominal support worn.

In each instance the healing has been by first intention, the amount of surgical disturbance nil, and the results, to date, all that could be desired.

The advantages claimed are: the readiness with which the round ligaments are found and separated from their environment, necessitating no tearing of the surrounding parts and disturbance of the tissues about the external inguinal ring, and the terminal filaments of the broad ligament at its pubic end, with the least possible danger of hernia as an after-result.

Should it be possible, as has been suggested by Dr. Frank, and, as is learned from late readings, is practised by Dr. Doléris, to do without the drainage tube, the operation and after-care would be even more simplified and devoid of some of its now possible accidents.

DR. HENRY T. BYFORD said that he had so far operated in twenty-one cases, and believes in the operation as at first, but he does not operate as much. He has had two failures. They were failures because he ought not to have performed the operation. In one case there was salpingitis with adhesions; in the other case there was an enlarged ovary and hydro-salpinx. The case of salpingitis resulted in slight peritonitis, with a temperature of 102° F. for several days. He took out the pessary at the end of six weeks, and at the end of two months, when she was at her housework, retroversion and peritonitis recurred. The uterus can now be easily held up by a pessary, while it could not before the operation, and will remain up after the pessary is removed until some strain forces it down. At present it is in position without a pessary. He thinks the uterus would stay in good position if the patient would allow him to remove the enlarged tube, but as it is, she is better off than before the operation. In all of his operations, he now leaves the pessary in place from six months to a year. He had another case which might be called a failure, as an inguinal hernia resulted. The patient had been to some of the most eminent gynecologists in Chicago, one of whom wanted to remove the ovaries. She could not tolerate a pessary of any description. Now she wears a pessary without trouble; the uterus is up, and she is one of the most grateful patients he has, in spite of her rupture. On account of this hernia, he threw aside his catgut and he now uses none but silkworm-gut sutures, and leaves those that close the canal and hold the ligament.

One great drawback to the operation is that the patients are not always immediately cured of symptoms. If there have been pelvic contractions or adhesions, there may be a dragging on these for some months. The first case he had was of this kind. The pessary was left in two months. She complained long afterward of a dragging on the groins, but at the end of a year she could, for the first time in several years, do her own housework and take care of her home. She had previously had gynecological treatment for five years, the last two by myself.

It is objected that the round ligament is not a normal support of the uterus. We do not shorten the round ligaments to support the uterus in cases of retroversion, as is so generally misunderstood; we merely turn the fundus forward and depend upon the normal abdominal pressure to hold it forward. Of course, the operation is only for the few cases in which the displacement causes symptoms, and in which it can be replaced, but cannot be permanently retained in position by less available or less dangerous means.

OBITUARY.

HENRY BERTON SANDS, M.D.

HENRY BERTON SANDS was born in New York City, September 27, 1830, spent his entire life there, and there died on the 18th of this month, full of honors, if not of years.

He was graduated in medicine at the College of Physicians and Surgeons in New York in 1854, served as House Physician and then as House Surgeon in Bellevue Hospital, studied for a year in Europe, and on his return, in the autumn of 1856, began practice in New York and was at once appointed Demonstrator of Anatomy in the college from which he had been graduated, a connection which he retained until his death, having been advanced in 1867 to the professorship of anatomy, and in 1879 to that of surgery, dividing the work of the latter position with Professor Markoe.

His practice at first was general, but he early became known and trusted as a surgeon, and for several years before his death he had confined himself entirely to surgery. He served for two years, 1861 to 1863, as Attending Surgeon to the New York Eye Infirmary and St. Luke's Hospital, for ten years, 1866 to 1876, as Attending Surgeon of Bellevue Hospital, for twenty years, 1863 to 1883, as Attending Surgeon of the New York Hospital, and for about twelve years, 1876 to 1888, as Attending Surgeon of Roosevelt Hospital. For many years he was an earnest advocate of the plan of continuous hospital

service, and it was mainly through his instrumentality that the Governors of Roosevelt Hospital were led to adopt this plan in the management of their surgical service; for the last five years of his life he was the sole surgeon of that hospital, and by his fidelity and skill raised the service to a height of efficiency and reputation which has made it seçond to none.

In the winter of 1885–86 he suffered a slight cerebral lesion, which he accepted as a warning to reduce his labor, and in the spring of 1888 he resigned his position at Roosevelt Hospital, after having a year previously reduced his work in the college so that his lectures should occupy only a single month. In October he returned from a three-months' vacation spent in Europe, apparently in his usual health, and resumed his practice, and on Sunday afternoon, November 18th, while returning in his carriage in company with Dr. A. A. Smith, from a visit to a patient, he suddenly became unconscious, and died almost instantly. The autopsy disclosed no fresh cerebral lesion, and death was attributed to heart failure, as the cardiac walls were extremely thin and one of the coronary arteries contained a recent clot.

Dr. Sands's professional work was marked by extreme care, thoughtfulness, and accuracy, by a full sense of responsibility, and by great sobriety of judgment. Though a skilful and experienced operator, and feeling himself equal to any emergency, he was never blinded to the interests of his patients or the credit of his profession by the temptation to do a brilliant but hazardous operation, and was always cautious and deliberate in his acceptance of surgical innovations and novelties. His contributions to medical literature were not numerous, but they were remarkable for thoroughness, profound thought, accurate judgment, and literary finish.

Direct, straightforward, and upright, both intellectually and morally, he pursued his course openly, vigorously, and with determination, but also with charity and consideration for those who differed with him. Outside of his profession he was a widely read and cultivated man, an animated and attractive companion, a steadfast and trustworthy friend. His death has made a gap in the foremost rank of the profession.

NEWS ITEMS.

Diphtheria from Cats.—A report has been made to the Central Board of Health of Melbourne, describing an outbreak of diphtheria, the cases occurring almost simultaneously in the neighborhood of Dalesford. One child died, but the others are progressing favorably. The local health officer has furnished a report, pointing out the strong *prima facie* evidence that the children contracted the disease from cats, numbers of which are dying in the neighborhood.—*British Medical Journal*, Nov. 3, 1888.

Finger-nails and Nail-brushes.—A painstaking German physician, Dr. Mittmann, of Würzburg, has published in Virchow's *Archiv* a notable paper bearing the remarkable scientifico-naturalistic title, "Untersuchungen von Fingernägelschmutz auf Mikroörganismen." Although this contribution cannot be said to be based on painful experiments on live animals, a certain section of society will hold that there can be little poetry in those who make researches for microörganisms in finger-nail dirt. Yet nails can scratch, and scratches may undergo troublesome pathological changes; moreover, as some authorities have insisted, the nails may seriously affect operation-mortality, for they can convey bacteria in particles of dirt unremoved by the nail-brush. Dr. Mittmann has found that germs abound under the nails of persons pursuing dirty occupations and of careless schoolboys. He cultivated the adventitious matter from the nails of twenty-five subjects, in agar-agar, gelatine, and blood-serum. Micrococci were almost invariably present, next in frequency came diplococci; in only eighteen cultivations were bacilli found; and sarcinæ appeared in three. Moulds abounded and grew freely on cultivation. The subjects were grouped as follows: six ragsorters, four female cooks, three waitresses, seven schoolboys, two barbers, and three undertakers' assistants. The degree of septic virus must vary greatly in groups which represent such different conditions. The use of the nail-brush in private life needs no advocate in this country; on the other hand, it is questionable whether that toilet article may not be a source of danger in hospitals and medical schools. A dissecting-room or ward nail-brush is as likely to convey as to remove septic matter. Possibly it is better to rub the nails on the surface of a piece of antiseptic soap during ablution, subsequently employing a penknife, if necessary, than to use a nail-brush under these circumstances.—*British Medical Journal*, Nov. 3, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM NOVEMBER 13 TO NOVEMBER 19, 1888.

By direction of the Secretary of War, the retirement from active service, this date, by operation of law, of ELISHA J. BAILEY, *Colonel and Surgeon*, under the provisions of the Act of Congress approved June 30, 1882, is announced. Colonel Bailey will repair to his home.—Par. 1, *S. O. 266, A. G. O., Washington*, November 14, 1888.

Lieutenant-Colonel SMITH, after being relieved by Lieutenant-Colonel Alden, will report in person to the commanding officer Department of Arizona, for duty as Medical Director of that Department, relieving Lieutenant-Colonel Richard H. Alexander.—Par. 10, *S. O. 268, A. G.O., Washington*, November 16, 1888.

By direction of the Secretary of War, leave of absence for four months is granted to RICHARD H. ALEXANDER, *Lieutenant-Colonel and Surgeon*, to take effect from the date of his relief from duty as Medical Director Department of Arizona, by Lieutenant-Colonel and Surgeon Joseph R. Smith.—Par. 11, *S. O. 268, A. G. O., Washington*, November 16, 1888.

ALDEN, CHARLES H., *Lieutenant-Colonel and Surgeon.*—Is relieved from further duty at the Military Academy, West Point, New York, and will report in person to the commanding general Department of Dakota, for duty as Medical Director of that Department, relieving Lieutenant-Colonel and Surgeon Joseph R. Smith.—Par. 10, *S. O. 268, Washington*, November 16, 1888.

WATERS, WILLIAM E., *Surgeon* (Vancouver Barracks).—Is granted leave of absence for one month, to take effect on or about the 1st proximo, with permission to apply for an extension of one month.—Par. 1, *S. O. 129, Headquarters Department of the Columbia* November 9, 1888.

By direction of the Secretary of War, CHARLES SMART, *Major and Surgeon*, will proceed to Milwaukee, Wisconsin, to represent the Medical Department of the Army at the meeting of the American Public Health Association in that city, November 20 to 23, 1888, and, upon the adjournment of the Association, will return to his proper station.—Par. 2, *S. O. 268, A. G. O., Washington*, November 16, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING NOVEMBER 17, 1888.

SWAN, ROBERT, *Passed Assistant Surgeon.*—Ordered before Retiring Board 19th inst.